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Spanish-Speaking Patients' Satisfaction with Clinical Pharmacists' Communication Skills and Demonstration of Cultural Sensitivity

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Spanish-Speaking Patients' Satisfaction with Clinical Pharmacists' Communication Skills and Demonstration of Cultural Sensitivity

by

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Dedication

I dedicate this book to loving and supportive husband, Dr. Anthony James Romo.

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Abstract

Spanish-Speaking Patients' Satisfaction with Clinical Pharmacists' Communication Skills and Demonstration of Cultural Sensitivity

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The primary purpose of this study was to assess Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills and demonstration of cultural sensitivity and to determine their association with Spanish-speaking patients' socio-demographic, clinical, and communication factors, as well as pharmacists' Spanish proficiency, cultural rapport, knowledge of complementary and alternative medicines, and race/ethnicity. A self-administered survey was designed to assess the study objectives, and a convenience sample of 93 adult (≥18 years) Spanish speakers with limited English proficiency was obtained from five CommUnityCare Health Centers in Austin, Texas. Satisfaction with communication skills and satisfaction with cultural sensitivity were measured as a 6-item construct and a 4-item construct, respectively, where Spanish-speaking patients rated their satisfaction using a 4-point Likert scale (1=extremely dissatisfied, 2=dissatisfied, 3=satisfied, 4=extremely satisfied). The participants' mean age was 52.0±14.3 years, where respondents primarily were female (65.9%), utilized publicly-funded insurance (100%), received less than a high school

education (86.9%), and reported a "fair" health status (64.8%). Spanish-speaking participants reported overall satisfaction with their clinical pharmacists' communication skills (3.6±0.5) and demonstration of cultural sensitivity (3.6±0.5). Study participants also indicated items within the cultural rapport subscale were generally important characteristics to Spanish speakers (3.5±0.5). The cultural rapport subscale instructed participants to rate the importance of pharmacists' specific characteristics (i.e., speaks Spanish, is Latino, provides written information in Spanish, is respectful, is kind, is friendly, and understandings the importance of family opinion in healthcare decisions) on a 4-point Likert scale, where 1=not at all important, 2=somewhat important, 3=important, 4=very important. Multiple linear regression analyses showed that cultural rapport was the only significant predictor of Spanish speakers' satisfaction with their clinical pharmacists' communication skills ($p<0.01$) and demonstration of cultural sensitivity ($p<0.001$). The results of this study may be instrumental in understanding the communication-related and cultural sensitivity-related needs of Spanish speakers in relation to pharmacists' cultural rapport and may help initiate future initiatives and interventions involving pharmacists and Spanish-speaking patients with limited English proficiency.

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Review of the Literature

INTRODUCTION

Health disparities in the Latino ethnic minority group have been a well-documented problem in the United States (U.S.). It has been established that American Latinos face worse health-related outcomes compared to whites pertaining to heart disease,[1-3] cancer,[4-7] diabetes mellitus,[8-11] mental health,[12-19] and the human immunodeficiency virus (HIV).[20-22] These and other detrimental outcomes are due to the barriers that Latinos face in the U.S. healthcare system. Often, Latinos in America underutilize general healthcare services, underutilize preventative services, utilize less follow-up visits, have decreased medical comprehension, have increased incidences in adverse events and harm, suffer from inadequate treatment of pain, and endure problems with medication management.[23-27]

Prior research has assessed many factors that underlie these existing health disparities, and researchers have found that language barriers, low socioeconomic status, lack of insurance coverage, low education levels, lack of citizenship, and low acculturation levels affect healthcare utilization and related outcomes.[1,4,14,15,21,28,29] Substantially, a large amount of these problems stem from language barriers between Spanish-speaking Latinos and English-speaking healthcare providers.[23,30] Limited English proficiency (LEP) represents one the largest barriers to healthcare for Latinos in the U.S., and while the majority of the literature focuses on communication barriers with

Spanish-speaking Latinos and medical healthcare providers,[25,31-34] it is important to highlight the problems associated with pharmacy services.[35] Ineffective and inadequate communication between Spanish-speaking patients and pharmacists has led to many issues with pharmacy-related outcomes regarding decreased pharmacy services knowledge,[36] medication knowledge, medication adherence, patient satisfaction,[27] and increased medication adverse effects.[35]

In order to find solutions to pharmacy-related health disparities with Spanish-speaking Latinos, it is imperative to determine the perceptions of this population of patients. Problems with pharmacy communication services have been linked to the lack of professional interpretation[37] and translation services by pharmacists,[38] and the lack of these services has led to low levels of satisfaction in Spanish-speaking patients.[39] Sleath et al.[35] found that abiding by certain cultural normative values, such as *simpatía* (kindness or politeness), *personalismo* (formal friendliness), and *respeto* (respect) were important to Latino patients. Similarly, the ability to understand and support the use of traditional Latino folk medicines, such as complementary and alternative medicines, has been shown to be important to Latino patients.[40]

While the perceptions of pharmacy services and the importance of cultural normative values and the use of traditional Latino medicines may vary among Spanish-speaking patients,[35,41] it is important to determine patterns of satisfaction with pharmacy services among Latinos; especially in Texas, where it is estimated that 36.9% of Texans are of Latino origin.[42] It is also important to assess the differences in satisfaction among subgroups of Spanish-speaking Latinos in Texas; therefore, perceptions of Spanish-

speaking patients from the Latino-populated city of Austin (30.5%)[42] were assessed. Although the results of this study may not be generalizable beyond subgroups from different geographies, cultures, and socioeconomic backgrounds, the results will add to the growing literature pertaining to Spanish-speaking patients' satisfaction and perceptions of clinic pharmacy services pertaining to pharmacists' communication skills and cultural sensitivity.

National and state initiatives focusing on eliminating health disparities have also been established.[43,44] As of 2010, the U.S. Congress has been committed to eliminating inequalities in health through the creation of the National Center on Minority Health and Health Disparities. The research agenda of the NCMHD is geared toward addressing and improving healthcare outcomes and eliminating health disparities in the U.S.[43] Similarly in Texas, the Task Force on Health Disparities was established by Texas legislature in 2001. The goals of this task force are to provide assistance in addressing health disparities, stimulating collaboration toward the elimination of health disparities, and supporting activities (e.g., research, cultural competency, health literacy, evaluation efforts) related to the promotion of health and the prevention of disease.[44] Therefore, this and related research will increase the understanding of Spanish-speaking patients' pharmacy-related beliefs and may allow for future implementation of intervention strategies to improve pharmacy-related health disparities in this growing population of U.S. Spanish-speaking Latino patients.

SECTION 1: LATINOS AND HEALTH DISPARITIES

Latinos in America

The present work focuses on Latinos because they represent a sizeable proportion of the United States (U.S.) population.[45] While the federal government officially refers to people of Spanish-speaking descent as Hispanic, the term is found to be unsuitable by many. The term Hispanic has narrow connotations pertaining to European colonialism and does not include the historically important roles of the native Indian and African slave cultures. However, the term Latino is all encompassing and describes all people of Spanish-speaking decent including those from Mexico, Central America, South America, and the Caribbean.[29] Therefore, it has become the accepted term by many researchers and communities and will be the term used to describe Spanish-speaking patients from this point on. The U.S. Census estimated that approximately 46.7 million Latinos (15% of the population) lived in the US in 2008, and by 2050, it is estimated that this number will increase to over 132.8 million people and become 30% of the total population.[46] The 2010 U.S. Census estimated that 34 million Americans spoke Spanish at home.[47]

Latino Health Disparities

Health disparities are often characterized as "unfair" and "unjust" differences in health or healthcare between two particular groups of people.[48,49] Disparities between two groups may relate to differences in the ability to access care, in healthcare utilization, in the quality of care received, in overall health status, and in health-related outcomes.[49] Often, health disparities between different races and ethnicities are assessed, and it has

been established that Latinos suffer from worse health disparities compared to other racial and ethnic groups in the U.S.[50] Reasons for these health disparities are complex;[49] however, the literature reports that health disparities have been attributed to differences in age, gender, socioeconomic status, insurance coverage, level of education, level of health literacy, level of acculturation, language barriers, immigration status, discrimination, and cultural normative values.[1,4,14,15,21,28,29,51-53] Latino health disparities have especially been observed in disease states such as heart disease,[1-3] cancer,[4-7] diabetes mellitus,[8-11] mental health disorders,[12-19] and HIV.[20-22]

Heart Disease

In 2006, the Centers for Disease Control and Prevention (CDC) listed heart disease as the number one leading cause of death among Latinos in the U.S., where approximately 28,921 died from heart disease.[54] However, Latino patients were less likely to receive screening and diagnosis for dyslipidemia after controlling for demographics, such as insurance, income, and number of physician visits. In a study that assessed cardiovascular risk factors, Mexican Americans had a high prevalence of being overweight and having diabetes mellitus (both $p<0.001$); thus, placing them at a higher risk for cardiovascular disease.[1] Another study paralleled these results, where Mexican American women were at the greatest risk for cardiovascular disease due to the high prevalence of type 2 diabetes mellitus.[2] Furthermore, after cardiovascular events (e.g., myocardial infarction), Latino patients were up to 71% less likely to utilize thrombolytic therapy than non-Hispanic whites.[1] Lastly, even after surgery was deemed appropriate,

the odds of receiving coronary artery bypass graft surgery was lower for Latino patients compared to white patients (OR=0.6, 95% CI: 0.43-0.84, p=0.003).[3]

Cancer

In 2006, the CDC listed cancer as the second leading cause of death in Latinos in the U.S., and it was estimated that cancer led to 20% of all Latino deaths (26,633 people).[54] Cancer-related health disparities reported by Spanish-speaking patients have related to treatment delays, advanced complications of cancer at diagnosis, increased cancer-related mortality, insufficient insurance, poor communication, and poor patient-provider rapport.[4-6] For example, a study conducted in Los Angeles reported that Spanish-speaking Latinas were often younger, uninsured, less educated, had lower income, and were farther along in their stage of breast cancer diagnosis compared to all other English-speaking cohorts. Patients also experienced significantly longer delays from diagnosis to treatment of at least three months compared to all other cohorts (36.4% of Spanish-speaking Latinas versus 9.1% of whites, 18.6% of blacks, 12.7% of English-speaking Latinas; $p<0.001$), which may have been attributed to lower socioeconomic status and lack of insurance.[4] A review article established that Latina patients were less likely to receive breast-conserving surgery compared to white patients.[7] Also, breast reconstruction surgeries were less likely to occur in Spanish-speaking patients compared to all other groups (9.2% Spanish-speaking Latinas versus 42.1% of whites, 13.8% of blacks, 34.5% of English-speaking Latinas; $p<0.009$), which may have been attributed to the significantly lower rates of communication between Spanish-speaking Latinas and

their providers (p=0.014).[4] Furthermore, Shavers and Brown[7] established that Latina patients were less likely to receive fertility-sparing procedures in cervical cancer treatment and were more likely to be given a hysterectomy compared to white patients. Overall, the odds of low satisfaction with surgical decision-making processes were 3.6 times higher for Spanish-speaking Latinas compared to English-speaking non-Latina white patients (OR=3.6, 95% CI: 2.9-6.9, Wald test=13.2, p<0.001).[4] Conversely, in a qualitative study conducted in the southwest U.S., all Spanish-speaking participants agreed that they received satisfactory cancer treatment and did not attribute any incidences of poor-quality care to race, discrimination, or language barriers. However, the study was limited by its size (n=5) and patients demographics, where participants were older cancer survivors with varying levels of English proficiency. Thus, the applicability of this study to other cancer populations is limited.[6]

Diabetes Mellitus

In 2006, diabetes mellitus was ranked as the fifth leading cause of death in Latinos in the U.S., with 6,287 dying from the disease state. Data from 2004-2006 estimated that 10.4% of Latinos aged 20 years and older were diagnosed with diabetes mellitus.[54] In general, Latinos have a high lifetime risk of developing diabetes mellitus, which is an important cardiovascular risk factor, and diabetic Latinos face high rates of diabetes-related complications such as lower leg amputations, retinopathy, end-stage renal disease, and diabetic neuropathy.[9,10] Compounding their predisposition to diabetes, diabetic Latinos were reported to be less likely to receive eye examinations, diabetic foot

examinations, annual lipid profiles, and influenza vaccinations compared to white diabetic patients.[8] A meta-analysis found that Latino patients had a 0.5% higher A1C value compared to non-Latino patients (-0.46, 95% CI: -0.63 to -0.33; $p<0.0001$). One study cited conflicting results, where non-English-speaking patients received significantly more diabetes-related care than white patients regarding glycohemoglobin tests (58.1% versus 41.8%, $p<0.05$), the number of clinic visits (90.3% versus 79%, $p<0.05$), and dietary consultations (12.9% versus 5.1%, $p<0.01$). However, this study assessed a population of non-English-speaking patients comprised of only 11.8% Spanish-speaking patients, and the study's clinicians were committed toward the utilization of professional medical interpreters during medical visits.[11]

Mental Health

The Surgeon General's Office recognizes that cultural differences have created obstacles for different racial and ethnic groups to obtain mental healthcare.[16] While mental health-related illnesses are not among the top ten leading causes of death in Latinos, studies have found increasing levels of health disparities regarding depression, suicidal ideation, bipolar disorder, schizophrenia, and schizoaffective disorder.[12-15] In 2006, suicide-related intentional harm led to 2,177 deaths and accounted for 1.6% of all deaths in Latinos in the U.S.[54] The etiology of these mental healthcare disparities are complex and attributed to patient-provider language barriers and the stigma of mental health disorders that is experienced within the Latino community. Thus, mental health disparities are not necessarily limited to Spanish-speaking Latinos.[14] Fiscella et al.[17]

reported that Spanish-speaking patients were less likely to have a mental health-related visit compared to English-speaking white patients (RR=0.5, 95% CI: 0.32-0.76, $p<0.05$). Similarly, Ponce et al.[18] reported that Spanish-speaking patients had a worse metal health status (RR=3.5, 95% CI: 1.49-4.06, $p<0.001$) compared to English-only speaking patients. When Spanish-speaking patients received mental health services, they had consistently lower numbers of outpatient visits compared to English-speaking patients ($p<0.01$). Spanish-speaking patients are more likely to suffer from depression compared to schizophrenia and bipolar disorder (68.7% versus 22.5% and 8.5%, respectively).[12] Studies show that Latinos, in general, are less likely to utilize public mental health case management services,[15] take antidepressants, utilize specialty mental healthcare services, [12] receive guideline-level depression care,[19] and adhere to antipsychotic medications.[55] Additionally, a review of studies showed that Latino children are at risk of behavioral and developmental disorders, have higher levels of suicide ideation, and are significantly less likely to have mental health-related hospitalizations and diagnoses compared to other non-Latino youth.[13]

HIV

In 2006, 1.2% of all Latinos in the U.S., approximately 1,617 people, died from complications of HIV. It was estimated that Latinos represent 19% of the total HIV-positive population, of which 42% of Latinos developed acquired immunodeficiency syndrome (AIDS) less than twelve months after their HIV diagnosis.[54] It has been reported that Latinos often have a late diagnosis of HIV (e.g., after becoming ill or during

pregnancy care) mainly due to the lack of HIV education.[20,21] These problems are especially apparent in foreign-born Latinos, where low levels of acculturation are an indicator of poor HIV disease-related knowledge.[20] A study that primarily assessed foreign-born Latinos found that these patients were less likely to have previously received HIV-testing compared to non-Latino patients (37% versus 77%, respectively).[22] Studies have found that Latinos are at risk of HIV infection due to high rates of unprotected sex with men who have sex with men (MSM) and use of shared needles during intravenous drug abuse. Fifty-nine percent of HIV-positive Latino males were infected during male-to-male sexual contact, and 19% were infected by shared needles. Interestingly, while the majority of new cases of HIV in white MSM occurred during the ages of 30-39 years, the majority of new cases in Latino males were among those aged 13-29 years old.[50] The majority of Latinas (73%) were infected through heterosexual contact, and 23% were infected during intravenous drug abuse.[21]

Socioeconomic status, insurance status, level of education, citizenship status, language, adherence rates, and culture have been all shown to affect HIV-related outcomes. Latino patients who are of lower socioeconomic status or do not have insurance are more likely to delay care after HIV diagnosis.[21] Latinos with lower levels of education were less likely to be tested for HIV, and Spanish-speaking Latinos were more likely to need more HIV/AIDS information and have misconceptions about HIV behavioral risks compared to English-speaking Latinos. Lack of citizenship and patient-provider language discordance has affected Latino HIV-positive patients' access to care.[20,21] Rates of 100% adherence to HIV pharmacotherapy are much lower in Latino

patients, and incidences of missed medications are higher in this patient population. Problems associated with treatment adherence in Latinos include working transient jobs, higher rates of alcoholism, and higher rates of depression. Interestingly, foreign-born Latinos have been shown to have excellent adherence to HIV medications, especially when bilingual interpreters and language resources were utilized. This may also be explained by the differences in culture, where foreign-born Latinos are more likely to respect the roles of a paternalistic healthcare dynamic and adhere to physicians' orders.[20]

Causes of Health Disparities in Latinos

As discussed above, many studies attribute Latino health disparities to low socioeconomic status, low education status,[56] immigration and citizenship status,[57] lack of transportation, low levels of acculturation,[18] low health literacy,[58] and language barriers.[23] A study conducted by Waidmann and Rajan[59] showed that high proportions of Latinos were uninsured (36.5%), unemployed (30%), had income-to-poverty ratios of less than or equal to 1 (25%), had less than a high school education (37%), and were foreign born, non-U.S. citizens (32%). Correspondingly, in a study that utilized data from the 1977 National Medical Care Expenditure Survey, the 1987 National Medical Expenditure Survey, and the 1996 Medical Expenditure Panel Survey, Latino patients were reported to have increasing rates of no usual source of healthcare and decreasing rates of ambulatory visits from 1977 to 1996. Many of these disparities were associated with the lack of insurance and low socioeconomic status,[41] and notably, Ku and Matani[28] found that immigration status affected insurance and healthcare access. Specifically,

lower levels of healthcare access were associated with the lack of health insurance, the lack of insurance was attributed to the lack of employment, and the lack of employment was correlated with the lack of U.S. citizenship in Latino patients.[28] Transportation issues were also found to be barriers to healthcare for Latinos: 21% of Latino parents cited issues with transportation as the main reasons for their children's missed medical visits, where transportation problems included not having a car and inconvenient public transportation routes.[60] Other studies have found that Spanish-speaking patients had higher levels of limited heath literacy, and these patients also had low levels of acculturation, as measured by the number of years residing in the U.S. and by citizenship status.[18,58] Finally, one study of Medicaid patients reported that Spanish-speaking Latinos with limited English proficiency (LEP) reported worse care than English-speaking whites and English-speaking Latinos.[61] LEP has been shown to be a major barrier to healthcare for Latinos in the U.S. and has led to worse health-related outcomes for Spanish-speaking patients.[24,25]

Limited English Proficiency-Related Health Disparities in Latinos

LEP is defined as the inability to effectively understand and communicate using the English language via reading, writing, or speaking.[62,63] Studies have found that Spanish-speaking patients with LEP suffer from higher rates of health-related disparities, compared to English-proficient and English-only speaking patients, due to patient-provider language barriers. These language barriers have led to increased health-related disparities in Spanish-speaking LEP patients.[18,63,64]

These patients have experienced problems associated with underutilization of medical services,[56,57,65,66] decreased access to medical care, increased delays in care, less prescription medication utilization, less preventive service usage, higher rates of missed follow-up appointments, increased resource utilization in the emergency department, and higher levels of treatment discontinuation contrary to medical advice.[23] Also, these patients experience lower health status levels, lower rates of medical comprehension, higher rates of drug complications, and lower likelihoods of having a usual source of care.[23,24,58,67]

Underutilization of General Healthcare Services

The underutilization of healthcare services by Spanish-speaking patients has been documented throughout the literature.[18,41,51,57,65] Studies have measured adult utilization of healthcare services and have established occurrences of decreased health care utilization of Spanish-speaking patients in a variety of healthcare settings: hospitals,[51,65] eye clinics, dental clinics, and family medicine clinics.[57] Two studies utilized U.S. healthcare survey data and cited an overall lower use of healthcare services by Spanish-speaking patients compared to English-speaking patients.[18,41] Through the use of Medical Expenditure Panel Survey data, Weinick et al.[41] reported that country of origin may influence healthcare utilization of Latino Americans; however, the authors also found that, overall, Spanish-speaking Latinos in the U.S. are significantly less likely to have ambulatory visits ($p<0.001$), emergency department visits ($p<0.001$), prescription medication ($p<0.001$) and inpatient hospital admissions ($p<0.05$) compared to non-Latino

white patients. In addition, Ponce et al.[18] utilized data from the 2001 California Health Interview Survey and concluded that older LEP patients were at a higher risk of reporting no usual source of care (RR=3.9, 95% CI: 1.05-3.17, p=0.033) and a lower health status (RR=23, 95% CI: 1.37-2.02, p<0.001) compared to English-only speakers.

In support of these data, the use of healthcare services provided by clinics has been positively correlated with the increased ability to speak English.[57] English-speaking patients had smaller gaps between visits for general checkups (p=0.037), eye care (p=0.0036), and dental care (p=0.00017). Furthermore, the authors reported that a larger proportion of patients who spoke English as their primary language (22.7%) rated their health status as excellent compared to Spanish-speaking-only patients (4.6%) and bilingual English-speaking patients who primarily spoke Spanish (11.1%). In general, Latino patients were more likely to have higher perceived health needs compared to non-Latino patients (p=0.001).[57] Two studies in the hospital setting support these findings.[51,65] The first study in Los Angeles found that Latinos with poor English proficiency and Latinos with fair and poor English proficiency reported 22% fewer physician visits compared to non-Latino patients who primarily speak English (p=0.015 and p=0.02, respectively).[51] The second study conducted in New York assessed asthmatic patients with extended follow-up and reported that Spanish-speaking patients seen by non-Spanish-speaking physicians (language-discordant physicians) were three times more likely to miss a physician visit compared to Spanish-speaking patients seen by language-concordant physicians (RR=3.06, 95% CI: 1.29-7.27, p=0.01).[65]

Underutilization of Preventative Healthcare Services

Studies have examined the use of preventative services in Spanish-speaking patients and have reported lower rates of preventative care in Spanish-speaking patients pertaining to mammograms, fecal occult blood tests, rectal exams, and influenza vaccinations.[8,17,62,68,69] David and Rhee[69] established that a significantly smaller percentage of Spanish-speaking patients received a mammogram within the past two years compared to English-speaking patients (60% versus 78%, respectively; $p<0.05$), and similar results were found by Lees et al.[68] (67% versus 49%, respectively). Three studies have found that influenza vaccination rates are significantly lower in Spanish-speaking patients,[8,17,68] and one study reported that Spanish-speaking Latinos were over three times more likely to not receive influenza immunization compared to English-speaking patients (RR=3.33, 95% CI: 1.92-6.67);[17] however, one study found no significant difference between English-speaking Latinos and English-speaking whites. Both Spanish-speaking Latinos and English-speaking Latinos were less likely to obtain a pneumococcal vaccination compared to English-speaking whites (24% versus 57%, $p<0.05$ and 35% versus 57%, $p<0.05$; respectively).[68] Spanish-speaking Latinos were less likely to receive endoscopy or home fecal occult blood tests for cancer screening compared to English-speaking whites (19% versus 40%, $p<0.05$),[68] and Jacobs et al.[62] reported significantly lower rates of fecal occult blood tests ($p<0.05$) and rectal exams ($p<0.05$) in Spanish-speaking patients. However, Jacobs et al.[62] also reported improved rates of preventative care utilization in Spanish-speaking patients after the implementation of a specialized interpreter service program.

Overutilization of Emergency Department Services

While there is a general underutilization of healthcare services by Spanish-speaking patients with LEP,[28,70] other studies have documented the overutilization of emergency department services by Spanish-speaking patients due to patient-provider language barriers.[64,71] Rogers et al.[64] found that 24% of Spanish-speaking patients (50/206) who visited an Atlanta emergency department were more likely to be triaged as high acuity (RR=1.5, 95% CI: 1.2-1.9, p=0.002) and admitted to the pediatric emergency department (RR=1.6, 95% CI: 1.2-2.1, p=0.002) compared to English-speaking patients. This increase in resource utilization by Spanish-speaking patients was likely due to patient-provider communication barriers, where 21% of the non-Spanish-speaking practitioners admitted these patients compared to only 16% of Spanish-speaking practitioners. Similarly, Hampers et al.[71] reported that language barriers led to a significant increase in emergency department diagnostic costs (mean=$38, p<0.001) and a significantly longer pediatric emergency department visit (mean=20 minutes, p=0.003) compared to patients without language barriers. Interestingly, a study conducted by Nasr et al.[72] found that the use of a self-administered emergency department questionnaire written in Spanish was more efficient in obtaining patient medical histories compared to the use of a bilingual interpreter. However, while the use of the bilingual questionnaire significantly decreased the amount of time spent obtaining patient information by about 9 minutes (p<0.0001), its use was severely limited to patients literate in the Spanish language.[72]

Fewer Follow-Up Visits

Studies have analyzed the relationship between follow-up rates and Spanish-speaking patients and have found low rates of follow-up for two reasons: lack of follow-up by the patient and lack of recommendation for a follow-up visit by the provider.[73,74] In patients who were scheduled a follow-up visit for laboratory tests at a clinic, Spanish-speaking patients were significantly less likely to adhere to follow-up compared to English-speaking patients ($p=0.031$).[73] On the other hand, Sarver et al.[74] documented the number of follow-up visits that were recommended by providers in a Los Angeles County emergency department and reported that patients with language barriers were significantly less likely to receive a referral for a follow-up visit compared to patients without language barriers ($p=0.05$). Specifically, of the patients with language barriers who received a referral, 83% were English speakers, 75% utilized a Spanish-speaking interpreter, and 76% needed an interpreter but did not receive one. However, there was no significant difference in follow-up visit adherence rates between English speakers (64%), Spanish speakers who utilized interpreters (60%), and Spanish speakers who did not receive an interpreter (54%) ($p=0.78$).

Decreased Medical Comprehension

Studies have measured medical comprehension involving medical encounters, medication use, medication labels, medication adverse events,[67] and medication-related knowledge.[58] One study in California assessed the relationship between LEP and healthcare comprehension and found that patients in California with LEP were

significantly more likely to report problems in understanding a medically-related situation compared to English-proficient patients, whether or not the medical provider was language-concordant ($p<0.05$). However, when healthcare providers were language-discordant, LEP patients were more likely to report issues with understanding medication labels ($p<0.05$) and adverse reactions due to the lack of understanding medication instructions ($p<0.05$).[67]

Increased Incidences of Adverse Events and Harm

Language barriers have also contributed to patient safety problems related to increased incidences of adverse events, temporary physical harm, permanent physical harm, and death in patients with LEP. A study involving six Joint Commission accredited hospitals reported that LEP patients were significantly more likely to experience higher incidences of detectable harm compared to English-speaking patients (49% versus 30%, respectively; $p<0.001$), and 52% of these incidences with LEP patients ($n=130$) were related to communication breakdown between patient and provider.[63]

Inadequate Treatment for Pain

Studies show that Latino patients receive inferior acute pain and cancer pain management in the emergency room and postoperatively compared to white patients.[75] Two studies assessed pain management in the emergency room.[26,76] Lee et al.[76] reported no significant differences between Latinos and whites regarding perceived pain intensity at presentation, mean expectations for pain relief, and perceived reasonable waiting time for pain medication administration. However, Todd et al.[26] found that Latino patients

were more likely to receive no analgesics compared to non-Latino white patients (55% versus 26%), and these patients were two times more likely to receive no pain medication for long bone fractures (RR=2.12, 95% CI: 1.35-3.32; p=0.03). In another study, a lower proportion of Latino patients received narcotic analgesics (p=0.007) and oral pain medications (p=0.003) compared to non-Latino whites, where Ng et al.[77] reported that Latinos received significantly lower doses of morphine sulfate equivalents for postoperative limb fracture pain compared to white patients (22 mg/d versus 13 mg/d, p<0.005). Similarly, Latino patients were prescribed significantly lower amounts of patient-controlled analgesia (PCA) for postoperative pain compared to African Americans and non-Latino whites (p<0.05).[77,78] Another study reported that Latino patients were less likely to receive World Health Organization-recommended analgesics to manage their cancer pain,[79] and Anderson et al.[80] estimated that approximately 28% of Latino cancer patients did not receive adequate analgesics for pain management. One study reported that physicians underestimated the severity of pain in over 50% of their Latino patients,[75] which may be partially explained by the findings of a qualitative study revealing culturally-related practices of Mexican American patients. For example, stoicism (the lack of expressing pain verbally or behaviorally) and *machismo* (enduring pain to show strength and pride) were common practices in Latino patients who were experiencing pain.[81]

Prevalence of Medication Use

Weinick et al.[41] found that Latino adults were less likely to report use of prescription medications compared to non-Latino whites (50% versus 62%, respectively), and Hahn et al.[82] reported that Latino children were less likely to receive prescription medications and, in general, took fewer medications than white children.[83] However, Jacobs et al.[62] reported that access to highly-trained medical interpreters led to increased rates of medication use by Spanish-speaking patients. Over a year after interpreter program implementation, significantly more prescriptions were written for (mean difference: 1.8; $p<0.01$) and filled by (mean difference: 2.3; $p<0.01$) Spanish-speaking patients.[62]

Barriers to Pharmacy Services

Two studies focusing on Spanish-speaking patients and pharmacy services reported that Spanish-speaking patients were not aware of available ancillary pharmacy services[36] and others were not receiving services that were needed.[36,84] In a study conducted by Xu and Rojas-Fernandez,[36] a higher proportion of patients with poor English-speaking proficiency were significantly less likely to be aware of available pharmacy services for blood glucose monitoring (19.4% versus 14.2%, $p=0.03$) and osteoporosis screening (12.6% versus 7.4%, $p=0.004$) compared to patients who were English proficient. The authors found that Latino patients were significantly less likely than white patients to recognize the availability of medication counseling services (55.5% versus 75.8%, $p<0.001$) and written medication information services (81.7% versus

92.6%, p<0.001) at their pharmacies. Sleath et al.[35] also reported barriers to pharmacy services and found that Latino patients in North Carolina were not receiving the pharmacy services they desired. The authors reported that proportions of Spanish-speaking patients (31% and 38%, respectively) never received prescription labels in Spanish or medication leaflets in Spanish. Only 17% of Spanish-speaking patients received verbal counseling services from a Spanish-speaking pharmacist at every pharmacy visit, and 36% received these verbal counseling services some of the time. The majority of patients (61%) wanted both written and verbal medication information.

Problems with Medication Management Services

Studies also addressed Spanish-speaking patients' problems associated with medication management.[35,56] Sleath et al.[35] reported many patient-perceived medication problems among Spanish-speaking patients, such as unwanted adverse effects, costly medications, problems reading and understanding the prescription label, difficulty reading English on prescription containers, refill obstacles, and fears of medication addiction. Similarly, another study established that Spanish-speaking patients struggled with tasks associated with remembering to take medications, reading medication labels, obtaining medication refills, and swallowing large quantities of medications.[56] Based on the results of Diaz et al.,[56] Latinos in Connecticut at two different mental health clinics (Latino versus conventional) felt that they needed more help with medication management compared to non-Latino patients at the same conventional mental health

clinic (p=0.0001). The authors concluded that monolingual Spanish-speaking patients may need more assistance in managing and using prescription medications.[56]

Solutions to Health Disparities in Latinos

Many professionals have endorsed solutions for decreasing disparities in Latinos in the U.S. Notably, the American College of Physicians endorse the provision of affordable health insurance to all Americans, adequate patient-provider health-related communication, the need for more health disparities research, and cultural competency for healthcare providers.[85] Brach and Fraser[86] established nine ways to increase cultural competency, which included utilizing bilingual interpreters, recruiting minority healthcare providers and staff members, increasing cultural awareness and education, collaborating with traditional folk healers, utilizing community gatekeepers and health workers, promoting culturally-relevant healthcare, utilizing family members, participating in intercultural immersion, and providing accommodating healthcare practices.[86] In order to help decrease health disparities, the American College of Physicians also endorses that providers recognize their inherent biases toward patients of different races and ethnicities.[85] In order to accomplish this, Flores supports the need for increased understanding of culturally-related healthcare practices of Latino patients.[29]

SECTION 2: CULTURALLY-RELATED HEALTHCARE PRACTICES

Acculturation of Latinos in America

Acculturation is defined as the process of assimilating into a new society, where changes in beliefs, values, or attitudes occur in order to reflect mainstream culture and ideals.[87] For Spanish-speaking Latinos, these changes may manifest as learning to speak English, obtaining U.S. citizenship, living in the U.S. for longer periods of time, or choosing to socialize with non-Latinos.[41,88-91] While these are all valid measures of acculturation, many acculturation scales focus on primary language as an important determinant of acculturation.[92] Many healthcare-related studies use English proficiency as a proxy for acculturation, and patients with limited to no English proficiency are considered to have low acculturation.[17,35,57,88] Therefore, measurement of acculturation may be helpful in understanding health disparities since it has been shown that the degree of healthcare access and utilization is dependent on the Latino patient's level of acculturation.[92]

Several studies focusing on Latinos with low acculturation have documented an interesting paradox that has been labeled the "healthy immigrant effect" or the "healthy migrant effect."[1,12,60,93,94] This term refers to a phenomenon of selective migration, where Latino immigrants tend to be healthier than the general American Latino population and as a result need less healthcare services.[12,93] Studies show that Latina immigrants have lower incidences of both infant mortality and low-birth-weight infants, and Latinos were less likely to smoke, to utilize illicit drugs, and have risk factors for cardiovascular

disease compared to non-Latinos.[60,93,94] As a result, first-generation immigrants were less likely to access and utilize U.S. healthcare.[93]

On the other hand, low acculturation has also been shown to adversely affect health outcomes in Spanish-speaking patients regarding diabetes mellitus, cancer, mental health, preventative care utilization, and prescription medications.[17,35,95-97] Studies have found that Spanish-speaking patients with low acculturation were less likely to access healthcare, to utilize preventative healthcare, to have a usual source of care, to have adequate knowledge about their disease states, and they were more likely to be uninsured and less educated.[60,88,95,96] Also, less acculturated Latino patients were more likely to utilize traditional normative cultural values, folk medicine, and complementary and alternative medicine.[29,96] In order to overcome the barriers to healthcare associated with low acculturation, it is imperative to understand, acknowledge, and respect the dominant cultural practices of Latinos.[29,92]

Latino Normative Values

The literature is replete with examples of normative cultural values held by Latino patients,[6,21,29,35,84,96,98,99] and these normative values influence Latinos' health beliefs and practices.[29] Normative values can manifest as behaviors, attitudes, and ideas originated from or associated with a culture, and expression of cultural normative values may depend on one's experiences, perceptions, socioeconomic status, country of origin, and education level.[29,98] There are many examples of Latino normative values including stoicism and *machismo*, which have been mentioned earlier; however, some of the most

common normative values that affect healthcare include: *simpatía, personalismo, respeto, familismo, and fatalismo.*[29]

Simpatía

The Spanish word *simpatía* has no equivalent in the English language; however, it is often referred to as "kindness." In general, it pertains to one's ability to maintain social politeness and avoid confrontations, especially during times of stress.[21,29,99] Providers can emphasize *simpatía* through a positive attitude, courtesy, and the provision of social amenities.[29] A study conducted by Triandis et al.[99] established that Latinos were more likely to consider kindness as social norm compared to non-Latinos. This study established that behaviors considered to be negative to Latinos were considered to be neutral to non-Latinos, and behaviors considered to be positive by non-Latinos were considered to be neutral to Latinos. Similarly, Sleath et al.[35] also found that 59% of Latino patients considered kindness to be a very important factor for pharmacy employees. The lack of *simpatía* has led to worse patient-reported outcomes, and one case study involving Spanish-speaking parents described dissatisfaction with healthcare when the emergency department pediatrician did not demonstrate simpatía.[100]

Personalismo

In English, the Spanish term *personalismo* means "formal friendliness"[21,29,100] and may be demonstrated through the establishment of warm relationships and appropriate physical contact (e.g., a steady handshake).[21,29] For example, routine conversations regarding the patient's family and work life can increase *personalismo*.[29] The importance

of establishing a friendly rapport has been documented by older Latino patients with cancer and HIV,[6,21] and 81% of pharmacy Latino patrons believed friendliness was a very important attribute displayed by pharmacy employees.[35] Failure to demonstrate *personalismo* has led to lower rates of satisfaction, medication non-adherence, lack of follow-up, and higher rates of obtaining inaccurate patient medical histories.[29,100]

Respeto

Respeto is translated as "respect," and is demonstrated through the use of appropriate body language, polite and formal expressions (e.g., *Señor and Señora)*, and the invitation for active participation in medical decisions.[29,100] Also, showing and receiving respectful behaviors are expected and vary based on age, gender, socioeconomic status, and level of authority.[21,100] For example, people with higher levels of authority, such as physicians, are shown *respeto* by Latino patients. However, the act of showing *respeto* also merits receiving *respeto* in return, and when healthcare providers did not reciprocate respect, decreased communication and non-adherence to provider instructions occurred.[29] Sleath et al.[35] reported that being shown respect was the most important factor considered by Latino patients when choosing a pharmacy. Lastly, healthcare providers must be aware of miscommunications that may occur due to respectful gestures, and studies have described instances where patients nodded in agreement with providers to show respect rather than in response to important provider instructions and comments.[29,100]

Familismo

Familismo is a term that describes the Latino family dynamic of loyalty and support, where the needs of the family unit surpass the needs of an individual family member. In general, the extended family makes important medical decisions together, instead of the individual patient.[29] Aspects of *familismo* include: supporting family members, being supported by family members, and making decisions that are pleasing to the family unit as a whole.[29,100] Examples of *familismo* include: hiding the diagnosis or prognosis of serious medical conditions from the affected family member, or withholding reasons for medical procedures from the affected family member.[6] This practice has been shown to be very common with Mexican Americans, especially with diagnoses of terminal cancer.[101] Latino patients with diabetes mellitus often depend on other family members to make treatment decisions, while Latinos with HIV cite the "need to live for someone" as a reason to maintain adherence to HIV treatment.[21] One study showed that high levels of family support led to increased medication adherence and a lower likelihood of relapse in Latino patients with schizophrenia.[102] On the other hand, failure to respect the need for *familismo* can lead to treatment non-adherence, lower satisfaction, and unnecessary conflicts. Providers can avoid this by providing family members with the chance to discuss important medical information and sufficient time to come to an agreeable decision.[29]

Fatalismo

The term *fatalismo* refers to the belief that one's fate cannot be changed and is greatly associated with religious beliefs. Fatalismo is often observed in patients with terminal illness, such as cancer and HIV.[21,29,96] For example, compared to white cancer patients, Latino patients were significantly more likely to believe that cancer was a death sentence, that there was little that could be done to prevent cancer, and that cancer was a form of punishment from God ($p<0.001$).[96] Patients who embrace the idea of *fatalismo* are less likely to utilize preventative health services and are more likely to avoid or delay treatment. Clinicians may be able to combat consequences of *fatalismo* by stressing the effectiveness of preventative screening, by emphasizing the efficacy of treatment, and by being aware of patient's religious beliefs.[29]

Latino Folk Medicine

Illnesses that are well-known and acknowledged within a certain culture and whose etiology, diagnosis, and treatment conflict with accepted models in biomedicine are considered to be folk illnesses.[98] The literature shows that Latino patients are familiar with the use of folk healers called *"curanderos," santiguadoras,"* or "*sobadoras"* for the treatment of folk illnesses, such as *empacho* (intestine obstruction due to food)*, mal ojo* (evil eye)*, susto* (separation of body and soul)*,* and *mollera caida* (fallen fontanelle).[29,98,103] Many folk illnesses cannot be explained by biomedicine and do not fit within any specific disease category within western medicine.[98] Studies estimate that 70% of Mexican Americans believe in folk illnesses, and 20% to 44% employ traditional

healing methods. The use of folk healing has been documented in the treatment of asthma, diabetes, and HIV,[101] and Latino patients admit to using folk medicine as a supplement to western medicine.[104] Therefore, it is important to acknowledge, understand, and respect healthcare-related cultural differences in Latino patients in order to improve patient-provider communication, rapport, patient satisfaction, treatment adherence, and utilization of healthcare.[98]

Latino Folk Healers

Folk healers practice *curanderismo*, which is a broad belief system based on Aztec and Spanish roots that encompasses psychological, spiritual, and physical healing.[97,104] With *curanderismo*, there is tremendous intraethnic diversity, and traditional practices may vary between Latino communities.[97] There are many different types of folk healers who are known by different names depending on country of origin. Types of folk healers may include: neighborhood *señoras*, naturalist doctors, older relatives, or specialized folk healers called "*curanderas*" or "*curanderos*."[98,105] Specifically, specialized folk healers from Puerto Rico are called *"santiguadoras,"* and specialized healers from Mexico are called *"sobadoras"* or "*curanderos*."[29,98] These specialized healers utilize ritualistic prayers and massages, as well as prepare ointments and concoctions reported to be of a mysterious nature by some Latinos.[105] The literature shows that Latino patients associate c*uranderos* with the spiritual and supernatural (e.g., witchcraft) versus neighborhood *señoras* and older family members (e.g., grandmothers) primarily with the use of complementary and alternative medicines (CAMs) and other

home remedies.[104,105] A qualitative study with older Mexican Americans reported that 84% of Mexican Americans (n=25) personally utilized folk medicine and later obtained similar care for their children, and 80% described moving between folk medicine and modern medicine based on the type of illness, the degree of seriousness of the illness, and the economic implications associated with treatment.[104] Similarly, another study found that 72% of Latino American mothers substituted folk remedies for their children's prescription asthma medication.[106] In general, folk healers treat physical and spiritual illnesses[105] and are known for treating the person as a whole versus just treating the cause of the illness.[98]

Examples of Latino Folk Illnesses

There are many different folk illnesses accepted by the Latino culture; however, common examples of folk illnesses found in the literature include: *empacho, susto, mal ojo,* and *caida de mollera*.[29,98,107,108] Other folk illnesses relate to hot and cold beliefs, abnormal movement of the blood within the body, and beliefs that spirits lead to the development of certain disease (e.g., HIV).[89,101] While most treatments for folk illnesses are not dangerous, the use of some treatments has led to disastrous consequences, such as lead poisoning.[29,98,108-110] Therefore, it is recommended that physicians continue to be knowledgeable about Latino folk illnesses in order to assess the likelihood of folk medicine use, discourage certain harmful folk practices, and counsel patients on ways to safely negotiate between folk medicine and western medicine in their Latino patients.[98,107]

Firstly, *empacho* is a folk illness that has been described by patients of Mexican, Puerto Rican, and Central American descent.[98] A study by Risser et al.[111] found that *empacho* was one of the most common folk illnesses reported by Latino caregivers. *Empacho* is a condition where foods stick to the walls of the intestines causing obstruction; it is a very common illness in children. Symptoms of *empacho* may include: nausea, vomiting, stomach cramps, bloating, diarrhea, and loss of appetite. Treatment of *empacho* may involve the use of traditional home remedies (e.g., abdominal massages, laxatives, water diets, wormwood, or traditional powders) or a *curandero* who prays and massages.[29,98,111] The use of traditional powders to treat *empacho* such as *azarcon, greta, albayalde* has been reported throughout the literature.[29,98,107] The CDC reports that 70% to 90% of *azarcon* and *greta* powders are composed of lead-type ingredients, and Latino children treated with these substances have suffered from dangerously high blood lead levels, where one case of lead-induced encephalopathy was reported.[109,110] Mothers may not know that *azarcon* and *greta* contain lead; therefore, it is recommended that physicians educate their patients about these powders and guide their Latino patients toward the use of less harmful treatments.[98,110]

Secondly, *susto* is a folk illness where one's soul leaves the body after the occurrence of a stressful, embarrassing, or frightening experience.[103,111] A study by Risser et al.[111] reported that 37% of all surveyed Latino caregivers (n=51) were aware of *susto*. Symptoms of *susto* include: insomnia, nightmares, the preference for solitude, loss of appetite, loss of strength, and depression.[103,111] Rubel et al.[103] documented the types of beliefs associated with Latino non-Indians and Latino Indians. Latino Indians were more

likely to attribute soul loss to the disturbance of spirit guardians who captured the soul; however, non-Indians were more likely to believe that soul loss occurred due to frightening situations rather than malevolent spirits.[103] Case studies assessing the treatments for *susto* have reported the use of healing rituals, *curanderos,* and other religious practices. For instance, during healing rites, guinea pigs (in Peru), chicken eggs (in Guatemala), and medicinal brushes (in South Texas) are rubbed or swept over the body to remove the illness. These objects are later placed in the approximate area where soul loss occurred as gifts to the spirits who took the person's soul. Another example of curing *susto* involved the use of a *curandero* who provided offerings of incense, candles, and animal sacrifices to earth spirits and instructed his patient to drink the water from the river where soul loss occurred three times a day in order to heal. Finally, a Latino mother in South Texas healed her son through religious practices by laying him down on the dirt floor of their shack, arranging his body in the form of a cross, digging holes around his head and hands, and filling the holes with water and medicinal herbs. While the mother and son prayed to the soul for its return, she swept her son's body with a medicinal brush and sprayed liquid from her mouth onto his face. Then, her son sipped the medicinal waters from the holes from the ground.[103] Risser et al.[111] also reported the use of holy water, chicken's eggs, herbs, *aguardiente, mezcal,* or burned white crystal stones during the folk treatment of *susto*.

Thirdly, mal ojo (evil eye) is a folk illness that occurs when a person with "strong eyes" looks at a child and "heats up" the child's blood. Symptoms of *mal ojo* include incessant crying, fever, nausea, vomiting, and bloating. *Mal ojo* was the most common

folk illness reported by a study of Latino caregivers, and treatments usually involved the use of chicken eggs, *curanderos,* herbal remedies, and ritualistic prayers.[111] Protection against *mal ojo* involves wearing an *azabache* or amulet on a necklace or bracelet. Providers should be aware of the risk of strangulation in infants who wear *azabache,* and that symptoms attributed to *mal ojo* overlap with serious medical conditions such as dehydration, sepsis, bacteremia, and gastroenteritis.[29]

Lastly, *mollera caida* or *caida de mollera* is known as fallen fontanelle, which is believed to be caused by bouncing or tossing an infant around, quickly removing a bottle or mother's breast away from a suckling infant, or allowing an infant to drink from a bottle in a moving vehicle. Over half of surveyed Latino caregivers (52%) were familiar with *mollera caida,* and reported symptoms included: fever, fussiness, and diarrhea. Treatment of *mollera caida* includes pulling the hairs around the fontanelle, applying ointments or creams to the fontanelle, applying suction to the fontanelle, and using home remedies made from eggs, soap, and rubbing alcohol.[111] Another common treatment for *mollera caida* involves tapping an infant's feet while holding it upside-down over water; a serious case of child abuse was reported when a Mexican grandmother used this technique with boiling water to cure fallen fontanelle. The child was admitted to a hospital in California with subhyaloid hemorrhaging, and after eight months, the infant died of pulmonary complications associated with severe quadriparesis.[108] Symptoms of *mollera caida* are reported to be indicative of dehydration, and physicians should watch for the delay of care associated with the use of folk treatment of fallen fontanelle and

counsel against the dangerous practice associated with some of the traditional treatments.[29,98]

Complementary and Alternative Medicine

The use of CAM by Latinos in the U.S. has been documented throughout the literature.[29,81,101,105,106,111,112] CAM is defined by the National Center for Complementary and Alternative Medicine as "a group of diverse medical and health care systems, practices, and products that are not generally considered part of conventional medicine" and may include: biologically-based therapies, alternative medical systems, manipulative and body-based methods, mind-body interventions, and energy therapies.[113,114] Some of the most common CAMs utilized by Latinos in the U.S. are based on the traditional uses of herbal treatments, home remedies, and prayer.[29,81,105,106,111,112] In the Latino culture, CAM is often used as a supplement to conventional medicine and is supplied by naturalist doctors and Mexican herbalists called "*yerberos*."[104] As mentioned above, the use of CAM is recommended by neighborhood *señoras*, older knowledgeable relatives, and *curanderos*.[40,81,104,106]

The use of herbal treatments dates back to the 16th and 17th centuries during the European conquest, where European and Native American cultures began to create unique beliefs regarding health and healing.[111] During this time, the cultural belief of the imbalance of hot and cold temperatures was established, and many Latinos today believe that, in order to restore one's health, certain medications and herbals must be used based on their hot or cold properties.[106,111] Additionally, herbal treatments have been

established as treatments for illnesses such as colds, gastrointestinal problems, seizures, kidney stones, and ear infections. Qualitative studies have reported that Latino patients used herbal treatments for diabetes mellitus, cancer pain, hypertension, anxiety, headaches, and insomnia,[104,106,111] and Latino mothers provided their infants with various herbal teas to treat abdominal pain, asthma, colic, diarrhea, ear infections, fever, toothaches, upper respiratory tract infections, and vomiting.[111] Interestingly, Poss et al.[40] reported that Latinos in El Paso, Texas who utilized herbal treatments were not aware of drug interactions between herbal and conventional medicine, the mechanisms of action of the herbs they took, and traditional knowledge regarding herbal treatments. However, many patients in the study, even those taking only western medicine, wished that their providers were more knowledgeable about and more willing to prescribe herbal treatments.[40]

While many Latino home remedies incorporate the use of herbal treatments, other home remedies are made strictly of non-herbal natural products.[29,81,106] Latino home remedies have been reported to be used for burns, rashes, coughs, and diarrhea.[29] Latino patients have also reported the use of rattle snake powder to treat cancer, and Latino mothers have reported the use of whale oil, cod liver oil, honey, and castor oil to prevent asthma attacks in their children.[106] Mikhail[115] reported that 81% of surveyed Latino mothers treated their children's illnesses with home remedies, and this study reported examples of potentially harmful home remedies such as: salt and oil enemas to treat fevers, lemon juice or breast milk drops to treat conjunctivitis, and baking soda and bleach mixtures to treat minor wounds.[115] Flores[29] supports the importance of learning

about patients' use of home remedies and other cultural health practices and recommending less harmful remedies in place of others when necessary.

Prayer has been established as an important CAM for Latino Americans,[6,81,105,111,112] and the use of ritualistic prayers when treating *susto* and *mal ojo* has already been mentioned above.[103,111] The use of prayer during the healing process is especially prevalent in Latinos who suffer from chronic or fatal diseases such as diabetes mellitus, HIV, and cancer.[6,81,101,112] Studies have reported that Latinos believed that prayer to God decreased their anxieties and increased their ability to relax, which led to better states of health.[81,112] Finally, Zapata et al.[105] established that patients often place their faith in God's ability to cure, and overall, religion, faith, and prayer are very important practices of Latino folk medicine.

SECTION 3: ESTABLISHED HEALTHCARE COMMUNICATION BARRIERS FOR SPANISH-SPEAKING PATIENTS

Limited English Proficiency (LEP)

Spanish-speaking patients with LEP are unable to adequately communicate with or understand their English-speaking providers, whether through written or verbal means.[30] It has been demonstrated that one of the largest barriers to communication for Spanish-speaking patients is the inability to communicate in English with their healthcare providers.[23] This is an important problem since in 2000, 60% of Americans who could not speak English spoke Spanish.[116] And furthermore, in 2010, the U.S. Census estimated that over 34 million American people spoke Spanish at home.[47]

Spanish Proficiency of Healthcare Providers

For Spanish-speaking patients with LEP, communication problems are further compounded by the reality that many healthcare providers report having limited Spanish proficiency.[84,117-119] Two studies assessed the Spanish proficiency of hospital residents and found that the majority of these medical providers spoke little to no Spanish.[117,118] Specifically, these studies reported that 68% (study n=59) of the pediatric residents at a hospital in Denver and 83% (study n=241) of the residents and fourth year medical students at a hospital in New York had limited Spanish proficiency. Despite differing levels of Spanish proficiency, almost all practitioners in both hospitals provided care to LEP Spanish-speaking patients. Also, in both studies, 53% of the providers with limited Spanish proficiency did not always use a professional hospital interpreter but depended

on their limited communication skills instead. On the other hand, in Denver, 80% of the non-proficient providers avoided communication with LEP families due to potential communication barriers.[118] Both the Denver study and the New York study found that *ad hoc* interpreters were utilized significantly more often than professional hospital interpreters ($p<0.01$ and $p<0.05$, respectively) due to the low accessibility of hospital interpreters and practitioners' beliefs that *ad hoc* interpreters are effective interpreters.[117,118]

Studies have also shown that the majority of community pharmacists have limited Spanish proficiency, especially in areas with growing populations of Latino Spanish-speaking patients.[84,119] These studies cited that 94% (study n=144) of North Carolina community pharmacists and 88% (study n=608) of Atlanta community pharmacists had limited to no Spanish-speaking proficiency, even though 48% and 62%, respectively, reported a need for counseling in Spanish. In North Carolina, the majority of pharmacists (56%) utilized interpreters who accompanied LEP patients to the pharmacy, and in Atlanta, pharmacists overall agreed that LEP patients should either provide their own Spanish-speaking interpreters or learn to communicate in English.[84,119]

These studies determined that the majority of community pharmacists, hospital medical residents, and fourth-year medical students could not speak fluent or proficient Spanish.[84,117,119,120] However, the majority of these healthcare providers were interested in participating in Spanish language training programs in order to improve their ability to communicate in Spanish.[84,117] While providers have the intention to increase their communication skills in the future, many felt that their current inability to communicate

in the same language was detrimental to LEP patients.[84,117,119] Denver medical residents believed that Spanish-speaking patients did not understand important health information related to diagnoses, medications, discharge, and follow-up.[118] Fifty-one percent of the New York medical residents and medical students maintained that Spanish-speaking patients received suboptimal healthcare compared to English-speaking patients,[117] while North Carolina community pharmacists believed that Spanish speakers were provided worse oral and written prescription medication information compared to English speakers.[84] A strategy used to overcome patient-provider language discordance is the use of professional trained interpreters.[102]

Lack of Professional Hospital Interpreters

The inaccessibility of professionally trained hospital interpreters has been documented as a major barrier to healthcare for Latino children, where one study reported that 11% of Latino parents (study n=203) believed that the lack of an interpreter impeded healthcare for their child.[60] Also, the lack of interpreters was cited in two previously mentioned studies surveying hospital residents and fourth year medical students.[117,119] In the study by Yawman et al.,[117] the majority of surveyed New York hospital residents and medical students (73% or 162 surveyed participants) did not utilize hospital interpreter services due to the extended wait times for hospital interpreters. Similarly, hospital residents in Denver cited time constraints and decreased interpreter availability as reasons for not utilizing hospital interpreters. Instead, 23% of the medical residents who were not proficient in Spanish depended on the help of proficient medical residents often to daily

for their patients' interpretation needs. Approximately 58% of the Spanish proficient medical residents, approximately eleven residents, reported helping other residents at least often, and it was estimated that, on average, 2.3 hours of their time per week was consumed by helping to interpret for other residents and their patients.[118]

Two studies have assessed the deficiency of professional interpreters at the hospital level and found that hospitals were not meeting the needs of their LEP patients. Both studies reported that Spanish speakers were the most common of all LEP patients.[30,37] Flores et al.[37] found that 87% of New Jersey hospitals (46/53) did not have designated interpreter services department and 97% did not employ a full-time professional interpreter (56/58). Of the 3% of hospitals that employed at least one full-time interpreter, there was an estimated one hospital interpreter to 240,748 New Jersey LEP residents. While Flores et al.[37] included hospitals that did not offer any type of language services, Regenstein et al.[30] examined 71 hospitals in the United States that utilized in-house professional interpreters and found that hospital language services remained deficient despite having established interpreter services. The lack of a significant correlation between the number of LEP patient visits and the number of LEP services utilized demonstrated that, although the need for LEP services was present, services were not being rendered. Authors from both studies recommended changes in language program funding and policies (e.g., third-party reimbursement for language services) in order to increase the availability and accessibility of interpreter services for patients with LEP.[30,37]

Consequences Associated with the Lack of Hospital Interpreters

When Spanish-speaking patients with LEP were not provided with a hospital interpreter in the emergency department, worse outcomes and decreased understanding of diagnosis and treatment were reported.[34,100] In a study conducted by Baker et al.,[34] 22% of Spanish-speaking patients needed a hospital interpreter but did not receive one, and of this group, 90% wished that the provider provided better healthcare related explanations. As a result, 62% of Spanish-speaking patients who needed an interpreter but were not provided with one reported fair to poor understanding of their discharge diagnoses compared to 34% of those who did not need an interpreter and 43% of those who utilized an interpreter ($p<0.001$). Correspondingly, a significantly larger proportion of Spanish-speaking patients who were not provided with an interpreter had fair to poor understanding of their treatment plans compared to those who did not need an interpreter and those who had an interpreter (42%, 14% ,and 19%, respectively; $p<0.001$).[34]

Healthcare Providers' View of Professional Interpreters

When Spanish-speaking patients with LEP receive services from professionally trained hospital interpreters or Spanish-speaking healthcare providers, studies show that communication-related satisfaction increases.[25,39] Correspondingly, other studies have established that the use of professionally trained interpreters leads to higher levels of communication between patients and providers.[121,122] A study conducted in California explored physicians' perceptions of quality interpreters and found that primary care physicians who utilized professional interpreters rated their patient-provider

communication significantly higher compared to physicians who utilized other types of interpreters (e.g., *ad hoc* or no interpreters) ($p<0.0001$). Professional interpreters were defined as trained medical interpreters or AT&T Language Line interpreters.[122] Another study conducted in California reported that physicians at a Baby Well clinic who utilized professional interpreter services significantly favored the use of professional remote-simultaneous interpretation (first-person tense is used by the interpreter) over professional proximate-consecutive interpretation (or traditional interpreter services). More patient-provider dialog was exchanged using remote-simultaneous services, where doctors and mothers had significantly more utterances per visit (10% and 28%, respectively) compared to traditional interpreter methods ($p<0.05$). With remote-simultaneous interpretation, more explanations were provided by both physicians and mothers, and there was a 13% lower rate of inaccurate interpretations (by the interpreter) involving utterances by the mother.[121]

Types of Interpreter Errors

Various studies have documented several different types of errors that occur with professional interpreters, bilingual providers, and *ad hoc* interpreters. Professional interpreters were defined as interpreters specifically employed by a hospital or healthcare facility, and *ad hoc* interpreters included friends, family members, nurses, social workers, and other untrained staff members The types of errors that occurred throughout the studies included: omission, addition, substitution, false fluency, and editorialization.[23,24,31,33,89,100] In one study, approximately 31 errors per clinical encounter

occurred (30.5, SD=3.6, range: 10-60).[24] Omission occurred when an interpreter left-out spoken information while interpreting dialog. Two articles cited omission as the most common type of error that occurred,[24,31] and one study found that it represented 52% of the total errors committed by interpreters (study n=396).[24] Addition errors occurred when an interpreter added more information than what was actually spoken by the provider, patient, or the patient's party (e.g., parent). The act of substitution was defined as incorrectly substituting certain words or phrases in place of other words or phrases. An interpreter committed false fluency when non-existing words or phrases were utilized to interpret patient or provider dialog.[24] Flores et al.[24] found that false fluency represented 16% of all communication errors (study n=396), and cases studies have documented that errors involving false fluency have led to severe consequences for Spanish-speaking patients.[100,123] Editorialization occurred when interpreters intentionally answered a patient or provider's question without first consulting the opinion of the other party.[24] Laws et al.[31] classified editorialization as "role exchange," especially when interpreters answered patient questions based on their own knowledge instead of consulting the healthcare provider for their professional judgment, and Aranguri et al.[33] found that editorialization occurred with 29% of the overall questions asked by patients (8/28).

A study conducted in Southern California, described four different communication scenarios that led to interpretation errors with Spanish-speaking *ad hoc* nurse-interpreters. The first scenario involved nurse-interpreters who provided contradictory patient information and physicians who did not request further clarification.

The second scenario involved nurse-interpreters who incorrectly interpreted patient dialog to fit with the clinical expectations of the provider. The third scenario involved nurse-interpreters who did not respect the credibility of patients and allowed their subjective views to affect communication. The final scenario involved the lack of explanation of cultural metaphors by the nurse-interpreter to the physician. For example, Spanish-speaking patients in this study often referenced abnormal blood movement when describing their symptoms. Fifty percent of the visits in this study contained one or more of the above scenarios, which led to significant misunderstandings regarding the patients' symptoms and concerns.[89]

Errors: *Ad hoc* Interpreters vs. Professional Interpreters

A large observational study assessed interpreter errors and found that *ad hoc* interpreters committed more errors of clinical significance compared to professional interpreters. Specifically, 77% of all *ad hoc* interpreter errors were of potential clinical significance (127/165) compared to 53% of all professional hospital interpreters errors (123/231) ($p<0.001$).[24] For example, an eleven year old child interpreter committed a total of 58 errors in one visit, and 84% of the errors were of potential consequence. Another study reported that when *ad hoc* interpreters interpreted for patients and providers, clinically-important incidences of omission or substitution occurred at least once in every visit, and this led to reduced amounts of overall communication.[33] *Ad hoc* interpreters may include family members (e.g., children or parents), friends, untrained nurses, untrained social workers, untrained office staff members, and bilingual patients in

the waiting room.[23] While the Association of American Medical Colleges recommends the use of trained medical interpreters, they also suggest the use of *ad hoc* interpreters under specific situations such as the *ad hoc* interpreter is over the age of 18, is deemed proficient in English, and there is a lack of medically-trained interpreters[124]

Although it has been shown that professional interpreters commit fewer errors of clinical importance compared to untrained interpreters, there is mounting support for increased training for professional interpreters in order to help reduce interpretation errors.[24,31,33] Suggestions for improvement involve policy changes mandating certification requirements, continuous training throughout employment, and medical terminology education.[24] Other common proposals include education and training for healthcare providers regarding: the various types of interpreter errors, the importance of avoiding lengthy discourses, and appropriate interpreter utilization techniques.[31,33]

Clinical Consequences of Misinterpretation

Examples of errors with potentially significant consequences were documented by Flores et al.[24] during thirteen Spanish-speaking patient hospital visits. Interpreters committed several interpretation errors regarding the omission of significant clinical questions or information involving patient drug allergies, past medical history, chief complaint and corresponding symptoms, medication dosing instructions, pediatric rehydration therapy, diagnostic tests, and behavioral symptoms. Examples of misinterpretation involving medication and dietary counseling included incorrect instructions for antibiotic use (use for two days versus ten days), hydrocortisone cream

use (apply over the entire body versus on infant's facial rash only), oral amoxicillin use (use in child's ears instead of giving by mouth), and infant feedings (use soy formula versus instructed to use breast milk only). An editorialization error occurred when an interpreter instructed a mother to avoid answering any of the provider's questions pertaining to sexually transmitted infections and history of drug use.[24]

Two case studies described the consequences associated with false fluency; specifically, Spanish speakers were misinterpreted by the healthcare providers.[100,123] Flores et al.[100] cited an incident that involved a two year old Latino girl and her Spanish-speaking mother. The girl was brought into the emergency department due to shoulder pain after falling off of her tricycle and hitting the ground. When the mother was explaining the situation in Spanish, the pediatrician literally interpreted "*se pegó*," as "she was hit" and then suspected child abuse. As a consequence, the child was taken away by a social worker from the Department of Social Services who, without the services of a Spanish-speaking interpreter, convinced the mother to sign a waiver forfeiting custody of her children. The mother eventually regained custody 48 hours later. Harsham[123] described an incident involving the misinterpretation of one Spanish word that led to a malpractice settlement. A Spanish-speaking 18 year-old male was rushed to the emergency department after falling unconscious in front of his girlfriend. Before he collapsed he said he was "*intoxicado,*" where he meant he was "nauseated." The paramedics interpreted the word to mean intoxicated. At the hospital he was treated for a drug overdose, and after almost three days, neurological tests established that the patient was suffering from two large clots in his brain. After appropriate treatment was

provided, the patient regained consciousness but was left a quadriplegic. He sued the hospital and all parties at fault and eventually settled for $71 million dollars.[123]

However, even with the use of interpreters, the communication between Spanish-speaking patients and their providers can be impaired. Two studies analyzed the social interactions between Spanish-speaking patients and their providers.[31,32] The first study measured patient centeredness during medical encounters and found that primary care physicians who utilized interpreters were more likely to ignore the comments of their Spanish-speaking patients compared to their English-speaking patients ($p<0.005$).[32] The second study assessed the doctor-patient relationship and found that non-Spanish-speaking providers who utilized interpreters developed a lower rapport with their Spanish-speaking patients compared to bilingual Spanish-speaking providers.[31] Studies have established that rapport building through "small talk" is an important aspect of the patient-provider relationship for Spanish-speaking patients, as this activity decreases the psychosocial barriers between this specific patient population and their healthcare providers.[31,39]

U.S. Civil Rights for LEP Patients

Discrimination against people with LEP is a recognized problem by the U.S. government; however, only recently have policies been enacted to counteract this discrimination.[125,126] The Office for Civil Rights in the U.S. Department of Health and Human Services enforces Title VI of the Civil Rights Act of 1964, which states that persons participating in programs and activities funded by the Federal government cannot

be discriminated against based on race, color, or national origin.[125] In 1998, a memorandum under Title VI of the Civil Rights Act of 1964 stated that recipients of federal funds must not deny or delay medical care to patients with LEP, as this represents a form of discrimination, and those funded by Medicaid and Medicare are required to provide language assistance services to patients with LEP.[23] In 2000, President Clinton signed Executive Order 13166, which mandated specific changes in federally assisted programs in order to improve accessibility of language assistance services for LEP persons.[126] In 2004, the Office for Civil Rights in the U.S. Department of Health and Human Services published a Guidance document pursuant to Executive Order 13166 that clarifies the nature and extent of the obligations required by recipients funded by the U.S. Department of Health and Human Services in regards to LEP patient services. The Guidance document also allowed certain healthcare facilities to become exempt from providing services if they served low numbers of patients with LEP or if costs were too burdensome based on the size of the recipients' budgets.[125]

Health Literacy

Poor literacy is a documented problem in the United States.[127] Literacy is defined as one's ability to communicate in the English language via reading, writing, and speaking, in order to function in life.[128] The 2003 National Assessment of Adult Literacy estimated that 39% of Hispanic adults in the United States had "below basic" literacy levels.[127] Similarly, health literacy is defined as one's ability to function in a healthcare system based on written and spoken information.[128] Since health literacy is also based on

one's level of English proficiency, Spanish-speaking patients' degree of health literacy may be further compounded by the reality that many of these patients have limited to no English proficiency.[129]

Consequences of Limited Health Literacy

Three studies measured the relationship between health literacy and health outcomes in Spanish-speaking and English-speaking patients using the Test of Functional Health Literacy in Adults (TOFHLA).[58,129,130] One study reported that 41.9% of Spanish-speaking patients had inadequate functional health literacy, and patients with lower levels of functional literacy were unable to read and comprehend even basic medication directions. A significantly larger proportion of elderly Spanish-speaking patients had marginal or inadequate functional health literacy compared to elderly English-speaking patients (82.6% versus 81.3%, $p<0.001$).[129] Another study that analyzed health literacy in Medicare enrollees 65 years and older reported that 53.9% of Spanish-speaking patients had marginal or inadequate functional health literacy compared to 33.9% of English-speaking patients.[130] These findings were supported by the results of Fang et al.[58] where patients with limited health literacy were more likely to be non-white and of older age. Specifically, this study assessed the relationship between health literacy and warfarin-related therapy knowledge and found that patients with limited health literacy were more likely to answer warfarin-related questions incorrectly compared to patients with adequate health literacy. The authors reported that atrial fibrillation patients with limited health literacy were also less likely to know their about their diagnosis of atrial

fibrillation ($p<0.001$) and understand their risks for stroke ($p=0.008$) compared to atrial fibrillation patients with adequate health literacy.[58] While functional health literacy is a significant aspect to be considered, an in-depth study of this topic is beyond the scope of this study.

SECTION 4: PHARMACISTS' PERCEPTIONS OF CARE PROVIDED TO SPANISH-SPEAKING PATIENTS

The Pharmacists' Role

The role of the pharmacist continues to evolve into a very unique patient-centered profession that focuses on decreasing medication-related morbidity and mortality. Thus increasingly, the ability to provide good pharmaceutical care depends on the quality of interpersonal communication between the pharmacist and patient.[131] However, the literature shows that quality communication is impeded due to language barriers between pharmacists and their Spanish-speaking patients.[35,84,119,120,132,133] Interestingly, studies have focused on pharmacists' perceptions and found that deficiencies in communication relate to the low Spanish fluency of pharmacists,[84,119] pharmacists' interest in learning Spanish,[84,119,120] language assistance services,[84,119,120,132,133] Spanish-speaking interpreters,[35,84,119,120,133] and cultural sensitivity of pharmacists.[84,119]

Lack of Spanish Proficiency Among Pharmacists

Two studies have assessed pharmacists' Spanish fluency and have recounted low percentages of pharmacists who were fluent in the Spanish language.[84,119] Muzyk et al.[119] reported that 1.3% of Atlanta pharmacists were fluent Spanish speakers, and Sleath[84] found that 4.2% of North Carolina pharmacists had fairly fluent knowledge of the Spanish language. While discussed in the last section, these are areas of rapidly growing Latino populations.[35,119] The majority of surveyed pharmacists in both Atlanta and North

Carolina had limited Spanish proficiency (88.4% and 94.5%, respectively), with pharmacists knowing few to no Spanish words.[84,119] Both studies acknowledged deficits in their effectiveness and ability to counsel Spanish-speaking patients. Correspondingly, over one-fourth of Atlanta pharmacists believed that their counseling offered no help to Spanish-speaking patients,[119] and most North Carolina pharmacists agreed or strongly agreed that Spanish-speaking patients received worse verbal counseling for prescription medications (91.7%) and worse advice on over-the-counter medications (53.5%) compared to English-speaking patients.[84] Furthermore, in a study conducted in Wisconsin, 17.2% of surveyed pharmacies (study n=128) were dissatisfied or very dissatisfied with their overall ability to communicate with non-English-speaking patients.[120]

The need for more pharmacy-related training for Spanish-speaking patients was cited by 53.5% of North Carolina pharmacists.[84] Pharmacists have suggested that communication could be improved through the use of language-related continuing education courses aimed at pharmacists and technicians[120] and through the use of pharmacy-focused internet or self-study Spanish classes offered through colleges of pharmacy.[84] Other recommendations were directed at the college of pharmacy level and included: increasing the enrollment of Spanish-speaking students, offering or mandating Spanish elective courses, and involving students in language assistance programs conducted at advance practice sites. While 43.1% of surveyed pharmacists in North Carolina and 48.8% in Atlanta had never taken a Spanish language course, pharmacists found ways to overcome their communication barriers.[84,119] Strategies included the use

of nonverbal communication,[84] pharmacy language assistance services,[84,119,120,132,133] and Spanish-speaking interpreters.[84,119]

Language Assistance Services

The lack of language concordance between pharmacists and patients created significant challenges for pharmacists providing pharmaceutical care.[132] Sleath et al.[35] found that while 61.3% of Spanish-speaking Latino patients in the North Carolina study preferred to have both written and verbal information, the majority of these patients (74.6% and 83%, respectively) never or sometimes received these services. The literature provides several examples of the language services that are utilized by pharmacists to help counsel Spanish-speaking patients, which include written information services, verbal language services, and translation services, such as computer programs and dictionaries.[84,119,120,132,133]

Written Communication Services

Written information services offered to Spanish-speaking patients commonly involved the use of one or more of the following translated materials: medication prescription labels, auxiliary labels, medication information leaflets, patient education leaflets, and new patient pharmacy forms. Computer programs, bilingual employees, and telephone interpreters also helped translate and prepare written information for Spanish speakers.[84,119,120,132,133] Of these written language services, the ability to provide prescription labels in Spanish was one of the most common written language services offered at pharmacies.[84,119,120] Pharmacies providing translated prescription labels were

reported in North Carolina (54.2%), Atlanta (49.5%), and Wisconsin (84.4%); however, the provision of translated labels was not a usual practice at all of the surveyed pharmacies.[120,132] Similarly, Sharif et al.[133] reported that only 69% of surveyed pharmacies in the Bronx (study n=161) provided medication prescription labels written in Spanish. The authors found that pharmacies located in areas heavily populated with Spanish speakers (populated with >50% Spanish-speaking) were more likely to provide translated prescription labels compared to areas that were less populated with Spanish speakers (populated with 25.1%-50% Spanish-speaking, or populated with ≤25% Spanish-speaking) (82% vs. 62% vs. 40% respectively, p=0.001).

Besides translated medication prescription labels, translated medication information was another common form of written language services for Spanish speakers, and Bradshaw et al.[120] reported that 85.2% of non-English-speaking patients received written information leaflets from Wisconsin pharmacies at least some of the time. Two other studies reported lower proportions of pharmacies that were able to provide medication information leaflets written in Spanish with only 44.9% of pharmacies in Atlanta[119] and 34.7% of pharmacies in North Carolina.[84] Sleath et al.[35] established that the majority of Latino patients preferred to have written information in Spanish. However, as discussed in the last section, some authors advise that certain Spanish-speaking patients may possess lower levels of functional health literacy; therefore, verbal communication between the pharmacist and Spanish-speaking patient is warranted.[58,84]

Verbal Communication Services

Verbal communication between the patient and the pharmacist, commonly manifested as patient counseling, allows for the verification of proper medication utilization and the identification of possible medication-related adverse events.[120] Bradshaw et al.[120] found that community pharmacies were especially susceptible to being unable to verbally communicate with non-English-speaking patients. Studies showed that, when pharmacists could not speak Spanish, they relied on the verbal language services provided by professional interpreters and *ad hoc* interpreters, such as bilingual pharmacy employees.[35,84,119,120,132] Muzyk et al.[119] reported that 52.8% of surveyed Atlanta pharmacists employed a Spanish-speaking individual, and 96.5% of these pharmacists felt that they were effective resources. In Wisconsin, 67.6% of pharmacies utilized bilingual staff members for verbal communication purposes,[120] and in North Carolina, over 16.0% of pharmacists referred patients to Spanish-speaking employees when they could not speak Spanish.[84] However, an important limitation to the use of *ad hoc* interpreters, as discussed in section 3, is the high frequency of interpretation errors.[24] When bilingual healthcare providers were not available, Sleath[84] suggested the use of professional telephone interpreters (e.g., AT&T Language Line). Approximately 22.5% of surveyed Atlanta pharmacists had access to a Spanish telephone service, and 87.6% of these pharmacists considered this service to be effective.[119] Bradshaw et al.[120] reported a statistically significant correlation between the availability of telephone interpreter services in pharmacies and the frequency of verbal communication with non-English-speaking patients ($p=0.005$). However, a limiting factor to the utilization of telephone

interpreter services is the expense.[84] Nevertheless, the use of professional interpreters is recommended over the use of *ad hoc* interpreters.[131]

Ad hoc Interpreters

Despite the limitations to their use presented in section 3, a*d hoc* interpreters represent a convenient interpretation source,[131] and their use is described in studies of pharmacists and Spanish-speaking patients.[84,119,120] For example, Sleath et al.[84] approximated that 55% of Spanish-speaking patients in North Carolina brought their own interpreters, and Bradshaw et al.[120] reported the use of *ad hoc* interpreters (family members and friends) in 11.4% of Wisconsin pharmacies. And Atlanta pharmacists agreed that Spanish-speaking patients should either learn English or bring an English-speaking interpreter with them to the pharmacy.[119] Even though studies have established that some Spanish-speaking patients prefer adult children as their interpreters,[52,53] the use of *ad hoc* interpreters is not recommended.[131] Besides the potential to lead to serious clinical consequences and medication errors,[24] the use of *ad hoc* interpreters may be culturally insensitive. For instance, the use of children as *ad hoc* interpreters may upset traditional Latino family dynamics by exposing them to confidential health-related information. Disrupting the patriarchal system could be very uncomfortable for a child, and thus, it could affect a child's ability to correctly interpret important information for an older family member. Therefore, when a healthcare provider decides to utilize *ad hoc* interpreters, it is important to consider the cultural normative values of their patients.[84,134]

Pharmacists' Cultural Sensitivity

Finally, Sleath[84] stressed the need to remain cognizant of the traditional normative values of the Latino culture, as discussed in section 2, such as *familialism* (loyalty to family), *simpatía* (kindness), and *respeto* (respect), while interacting with Spanish-speaking patients. Sleath et al.[35] also advocated the importance of learning about the culture and healthcare beliefs of Latino Spanish-speaking patients. Muzyk et al.[119] assessed Atlanta pharmacists in an attempt to gain an understanding of their cultural sensitivity and attitudes toward counseling and interacting with Spanish-speaking patients. Although four out of their seven questions were discarded, the authors measured Atlanta pharmacists' level of cultural sensitivity toward Spanish-speaking patients and reported that the average response to their cultural sensitivity statements were "neither agree nor disagree" (3.28, SD=0.61). The authors deduced that surveyed Atlanta pharmacists embraced neither sensitive nor insensitive feelings toward patients of other cultures. Although Atlanta pharmacists assumed neutral or indifferent attitudes toward cultural sensitivity, they agreed that interacting with patients from different cultures was enjoyable, and disagreed with idea that the blending of different cultures could not occur successfully. Interestingly, the study also found that independent community pharmacists (2.98, SD=0.66) were significantly less culturally sensitive compared to hospital inpatient pharmacists (3.40, SD=0.63) ($p<0.05$) and community chain pharmacists (3.27, SD=0.55) ($p<0.05$). Female pharmacists and ethnic minority pharmacists were more open-minded toward counseling and interacting with patients of different cultures compared to male pharmacists and white pharmacists, respectively.[119]

SECTION 5: SPANISH-SPEAKING PATIENT PERCEPTIONS AND SATISFACTION WITH HEALTHCARE SERVICES

Satisfaction with Provider Communication

The literature provides evidence of the dissatisfaction of Spanish-speaking patients with health-related communication, interactions, and current practices.[39,52,53,69,135-140] Of the satisfaction surveys focusing on Spanish speakers, some recounted experiences with the direct communication of health care providers,[69,135-138] but most described unsatisfactory experiences with Spanish-speaking interpreters.[39,52,53,139,140]

Satisfaction Surveys

Surveys measuring communication satisfaction with healthcare providers compared ratings of Spanish-speaking patients with English-speaking patients in four different studies, and these studies found that Spanish-speaking patients were less satisfied with provider communication compared to English-speaking patients.[69,135-137] In a Massachusetts emergency department, non-English speakers (50% of whom were Spanish-speakers) recounted more overall communication problems compared to English speakers.[135] In Oregon, fewer Spanish-speaking parents were satisfied with the amount of time the provider spent communicating with them during their child's medical visit (32.5% versus 58.6%, p=0.0001) compared to English-speaking parents; however, the authors did not report significant differences between the two patient groups regarding the provider's ability to listen, explain information, and relay respectful comments and concerns. Also, Spanish-speaking patients were as satisfied as English-speaking patients

with their providers' ability to explain information.[136] Contrary to the findings of Mosen et al.,[136] a higher adjusted proportion of Latino Spanish-speaking patients on the west coast were significantly more dissatisfied with their providers' ability to listen (28.8% vs. 13.4%, $p<0.01$), answer questions (26.6% vs. 12.4%, $p<0.01$), explain prescription medications (30.5% vs. 14.0%, $p<0.01$), explain medical tests (35.0% vs. 17.3%, $p<0.01$), and provide reassurance and support (37.0% vs. 17.8%, $p<0.01$) compared to English-speaking patients. The authors suggested that, if these ratings are indicative of the unsatisfactory quality of communication between providers and patients, Spanish-speaking patients might be at risk of worse health care and treatment outcomes.[137] Similarly, in New York, a significantly smaller percent of Spanish-speaking patients self-reportedly received an explanation about medication side effects compared to English-speaking patients (53% versus 84%, $p<0.001$). Also, the authors found that language barriers inhibited satisfaction, and fewer Spanish-speaking patients believed that their providers understood their feelings compared to Latino English-speaking patients.[69]

Satisfaction with Language-Concordant Providers

In North Carolina, 52% of surveyed Latino patients preferred to verbally communicate in Spanish without the use of an interpreter while at the pharmacy.[35] Mutchler et al.[52] also found that older Spanish-speaking patients expressed deliberate use of pharmacies with Spanish-speaking employees. Patients felt that the use of language-concordant pharmacies increased the ease in obtaining medications. Patients recalled the

help Spanish-speaking employees offered with prescription medication directions and written information.

Spanish-speaking patients prefer to speak directly to their physicians,[39,52,53,139] and the use of Spanish-speaking interpreters, primarily *ad hoc* interpreters, has been shown to negatively affect the satisfaction ratings of some health care providers.[39,139] Lee et al.[39] reported that Spanish-speaking patients who utilized family interpreters rated their healthcare providers lower compared to patients who utilized language-concordant physicians. After multivariate analysis, significant differences with provider satisfaction between groups related to the provider's listening ability (62% vs. 88%, $p=0.003$), discussion of sensitive topics (60% vs. 76%, $p=0.02$), and manner (62% vs. 89%, $p=0.005$). Respectively, Baker et al.[139] found that Spanish-speaking patients who used an interpreter (*ad hoc* or formal) were less satisfied with the friendliness ($p=0.003$), respectfulness ($p=0.002$), expressed concern ($p<0.001$), and the comforting ability ($p<0.001$) of their providers compared to patients who did not need an interpreter. And when patients needed an interpreter and were not provided one, satisfaction scores were significantly lower in every surveyed domain (friendliness, time spent, respectfulness, expressed concern, and comforting ability of the providers) compared to patients who did not need interpreters ($p<0.001$).[139] Both studies expressed that interpreters inhibited the ability to build a good rapport and relationship between providers and patients due to the loss of direct interpersonal communication.[39,139]

Dissatisfaction with Language-Discordant Providers

Fernandez et al.[138] assessed the relationship between primary care physicians and Spanish-speaking diabetic patients in San Francisco and showed that patient-provider language-discordance led to lower satisfaction with providers. A multivariate analysis showed that physician self-rated Spanish fluency was associated with the elicitation and responsiveness of Spanish-speaking patients' problems and concerns. The authors found that Spanish-speaking patients who were treated by physicians who were fluent in Spanish were more likely to report better interpersonal care.

General Satisfaction with Interpreter Services

Other satisfaction surveys focused on interpreter services for Spanish-speaking patients, which focused on satisfaction with the use of telephone interpreters, *ad hoc* interpreters, and professional interpreters.[39,52,53,102,139-141] Some studies maintained that the use of interpreters, in general, did not facilitate patient satisfaction[52,53,139] or improve patient-provider communication.[39,138] However, other studies found support for the use of interpreters in enhancing patients' satisfaction with communication[39,140,141] and that interpreters remain necessary tools to facilitate communication between healthcare providers and Spanish-speaking patients.[102]

Qualitative Literature on Interpreter Satisfaction

Two qualitative studies conducted in Massachusetts conveyed similar perceptions of Spanish-speaking patients regarding their use of interpreters.[52,53] Mutchler et al.[52]

found that older Latino Spanish-speaking patients experienced dissatisfaction with formal interpreters in general. Their qualitative study of Latino Spanish-speaking patients found that the veracity of the interpretations from formal interpreters were often dubious. Weitzman et al.[53] conducted a study on middle-aged and older Latino females and confirmed similar problems of inadequate translations from formal interpreters. Patients in these studies preferred to use family members as interpreters, such as adult children. They perceived that their own family members provided more accurate interpretations compared to formal interpreters or office staff members. However, most patients tried to avoid the use of interpreters by finding a physician who could speak Spanish.[52,53] When patients were asked about the importance of having ethnicity-concordance with their provider, the responses remained mixed in one study,[52] and others felt this was unnecessary in the other study.[53]

Satisfaction with Professionally-Trained Interpreters

Contrary to the findings of Mutchler et al.[52] and Weitzman et al.,[53] Kuo et al.[140] reported that both Spanish-speaking patients and medical residents in Rhode Island were highly satisfied with professional interpreters (92.4% and 98.0%, respectively), and Garcia et al.[102] found that Spanish-speaking parents in Texas were more satisfied with formally-trained hospital interpreters (mean satisfaction=94, SD=11.0) compared to *ad hoc* interpreters (mean satisfaction=74, SD=16.2) and telephone interpreters (mean satisfaction=69, SD=12.4) ($p<0.001$). Also, physicians in Texas had higher satisfaction scores with formally-trained hospital interpreters compared to *ad hoc* interpreters,

telephone interpreters, and having no interpreter. Interestingly, two studies assessed Spanish speakers' preferences and found that the use of telephone interpreters was preferred compared to the use of *ad hoc* interpreters. Lee et al.[39] reported that, among Spanish-speaking patients in Colorado, the use of an AT&T interpreter provided more satisfaction over the use of family interpreters, and Cunningham et al.[141] reported that Spanish-speaking mothers in New York rated telephone services with Pacific Interpreters positively with 94% of mothers rating the experience as "very helpful." Also, 85% of mothers who utilized telephone interpretation services were very satisfied with the overall clinic visit compared to 57% of mothers who did not use these services ($p<0.05$).[141] Spanish-speaking patients and Spanish-speaking mothers both agreed that helpfulness was an important characteristic of interpreters. Patients agreed that formal interpreters who possessed certain qualities, such as accuracy and availability, increased satisfaction.[140]

Satisfaction with *Ad hoc* Interpreters

The use of *ad hoc* interpreters has produced mixed results between Spanish speakers.[39,52,53,102,139-141] While older Spanish-speaking patients preferred the help of family members with medical interpretation due to the perception of increased accuracy and trust,[52,53] other Spanish-speaking patients prefer family interpreters due to the increased comfort during discussions involving embarrassing issues.[140] In contrast, Lee et al.[39] reported that *ad hoc* interpreters, especially family members, were not preferred over other interpreters, and their use led to lower satisfaction scores. Other studies also

support that Spanish speakers are less satisfied with *ad hoc* interpreters.[102,141] Reasons for lower levels of satisfaction with *ad hoc* interpreters include: less rapport building between patient and provider,[39,139] and the decreased veracity of dialog between the patient, provider, and interpreter.[141]

Other Barriers to Healthcare Satisfaction: Respect, Trust, and Discrimination

The importance of respect (*respeto*) in the Latino culture has been cited by several authors.[29,35,98,99] Sleath et al.[35] found that 90.3% of Latino patients felt that respect was a very important aspect to consider when choosing a pharmacy. Mutchler et al.[52] found that older Spanish-speaking patients were often treated with disrespect by physicians and pharmacists when they were ridiculed for their limited English proficiency. The authors also revealed that this disrespect impeded the ability to create trusting patient-provider relationships. Hunt et al.[142] reported that fewer Spanish-speaking patients (88%) trusted their doctor to place their medical needs as a priority when making medical decisions compared to 92% of the total population surveyed ($p<0.05$). Weitzman et al.[53] found that doctors who neglected to adequately talk to their Latino patients were seen as untrustworthy; specifically, Latino patients found it necessary for healthcare providers to ask if they had more questions. The immigration status of Latino patients also affected whether a trusting relationship was formed between patient and healthcare provider. Latino patients feared that their personal information in medical files could be handed over to immigration services, and the need for trustworthy providers was imperative. The authors also found that language played a central role in establishing a trusting

relationship.[53] Ayanian et al.[143] reported that a smaller proportion of Spanish-speaking patients had confidence in their providers compared to English-speaking patients (p=0.01). Spanish-speaking patients felt that having a language-concordant doctor was necessary in order to trust and have confidence in the healthcare they received. The authors concluded that language is related to trust, and trust helps foster active decision making between patient and provider. Although, patients expressed a preference for language-concordance in healthcare providers, they did not express the same need for ethnicity-concordance.[53,56]

Weitzman et al.[53] reported that middle-aged Latino patients perceived that Latino medical staff members often made their medical experiences difficult. Latino patients felt that Latino staff members should serve a helpful role in their healthcare; however, they felt mistreatment and discrimination from these staff members instead.[53] Mutchler et al.[52] examined encounters of discrimination that Spanish-speaking patients experienced from physician offices and pharmacies. Specifically, Spanish-speaking patients expressed that they were the bearer of patronizing comments, rude looks, or inappropriate bodily gestures and sounds. The authors concluded that discrimination was an obstacle toward the achievement of trusting and respectful patient-provider relationships, and without these relationships, patients could not obtain the best possible healthcare experiences.[52,53]

SECTION 6: SUMMARY OF RELEVANT LITERATURE

The literature supports that communication barriers between Spanish-speaking patients with LEP and English-speaking healthcare providers have led to clinical consequences of misinterpretation regarding drug allergies, medication dosing instructions, diagnostic tests, and clinical symptoms,[24] and these consequences are often a direct result of the lack of available professional interpreters and Spanish-proficient providers.[37] Other pharmacy related-problems stem from the lack of written translation services in Spanish and Spanish-speaking pharmacy employees.[38,84,133] Specifically, the inability of healthcare providers to listen to Spanish-speaking patients, answer questions, and provide explanations about prescription medications and medical tests has led to significant levels of dissatisfaction with medical providers.[137]

Satisfaction was also found to be influenced by medical providers' friendliness, expressed concern, and comforting ability.[139] These characteristics relate to the important cultural normative values held by Latino patients. Latino patients have expressed the importance of being shown friendliness (*personalismo*), kindness (*simpatía*), and respect (*respeto*) by pharmacy employees.[35] Another important cultural normative value that has affected satisfaction is a term called *familismo*, which refers to a medical provider's ability to respect the role of the family unit in forming healthcare decisions for an individual patient. Pharmacists' and other medical providers' understanding and respect for these cultural normative values have shown to be related to patient satisfaction.[29]

Similarly, the use of Latino folk medicine has been shown to play an important role in the health of Latinos, where western medicine is often supplemented with folk healers, home remedies, and complementary and alternative medicines (e.g., herbal treatments and prayer).[98,107] For example, both the Latino patients who utilized folk medicine and those who utilized western medicine solely expressed the desire for providers to be more knowledgeable and more willing to prescribe herbal treatments.[40] Even though the literature shows that pharmacists' carry an overall neutral attitude toward cultural sensitivity,[119] the importance of the healthcare provider's ability to demonstrate cultural sensitivity toward Latino patients regarding normative cultural values and the use of Latino folk medicine has been documented.[29,40]

Past research has supported the existence of relationships between Latino patients' satisfaction and both the healthcare providers' provision of medical services and cultural sensitivity. The majority of studies throughout the literature included: perceptions of both English-speaking and Spanish-speaking Latino patients, a few perceptions on cultural sensitivity, and mostly perceptions regarding medical providers' healthcare services.[35,39,40,52,53,102,135,137-140]

Therefore, the purpose of this study will be to assess LEP Spanish-speaking patients' satisfaction with their clinic pharmacists' communication skills and demonstration of cultural sensitivity, while controlling for important satisfaction, socio-demographic, clinical, and communication factors.

SECTION 7: SIGNIFICANCE AND PURPOSE OF THE STUDY

Study Significance

The 2010 U.S. Census estimated that 34 million Americans spoke Spanish at home.[47] The U.S. Census estimated that approximately 46.7 million Latinos (15% of the population) lived in the US in 2008. By 2050, it is estimated that this number will increase to over 132.8 million people and will encompass 30% of the total population.[46]

Only a few studies have focused on the direct communication between pharmacists and Spanish-speaking Latinos; however, these studies show that the communication needs of Spanish-speaking patients are infrequently addressed by pharmacists.[35,36,84,119,120] The literature supports that the communication between Latinos and healthcare professionals is hindered due to language barriers and differences in culture (e.g., normative values and folk medicine).[23,29] As the population of Latinos continues to grow in the U.S., communication and cultural-related problems may continue. Pharmacists are becoming more patient-centered professionals; therefore, the communication and cultural barriers between pharmacists and Latinos need to be addressed. Communication and culture are very dynamic processes between patients and healthcare providers, and it is important to assess the perceptions of all parties involved. Thus, it is essential to gain a healthy knowledge of Spanish-speaking patients' perceptions in order to facilitate ways to improve pharmacist-patient communication and to promote the development of culturally competent pharmacists. Ultimately, the findings from this study may lead to the development of interventions to improve the

communication and cultural sensitivity of primary care clinic pharmacists in relation to Spanish-speaking patients.

Purpose

The primary objective of this study is to assess the perceptions of Spanish-speaking patients regarding their perceived satisfaction with their primary clinical pharmacists' communication skills and demonstration of cultural sensitivity, while controlling for important socio-demographic factors, clinical factors, communication factors, pharmacists' cultural factors, and the pharmacists' race/ethnicity. Practice sites were chosen based on their substantial Spanish-speaking Latino patient populations, as well as for variation in clinical pharmacists' Spanish-speaking abilities. Some CommUnityCare clinical pharmacists in Austin speak limited Spanish, whereas others are fluent in Spanish. All clinics utilize trained pharmacists who have completed accredited pharmacy residency programs focusing on ambulatory care. The secondary objectives of the study are to describe the cultural factors of clinical pharmacists that are important to Spanish-speaking patients, Spanish-speaking patients' satisfaction with communication skills and demonstration of cultural sensitivity, self-rated and participant-rated Spanish proficiency of clinical pharmacists, clinical pharmacists' race/ethnicity, socio-demographic factors, clinical factors, communication factors, and cultural factors.

Objectives and Research Hypotheses

1. To describe Spanish-speaking patients' satisfaction with clinical pharmacists' communication skills and demonstration of cultural sensitivity, self-rated and participant-rated Spanish proficiency of pharmacists, the race/ethnicity of clinical pharmacists, and the socio-demographic, clinical, and communication factors of Spanish-speaking patients.

2. To describe the cultural factors of clinical pharmacists that are important to Spanish-speaking patients.

3. To determine whether Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills is related to participant-rated pharmacists' Spanish proficiency while controlling for socio-demographic factors (i.e., age, gender, education, and insurance), clinical factors (i.e., number of medications, number of co-morbid disease states, and self-rated health status), communication factors (i.e., interpreter needed, interpreter offered, pharmacists' understanding, and participants' understanding), pharmacists' cultural factors (i.e., cultural rapport and knowledge of CAMs), and the pharmacists' race/ethnicity.

   Hypothesis$_{A1}$: There is a positive relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills and participant-rated pharmacists' Spanish proficiency ratings, while controlling for other factors.

Hypothesis$_{A2}$: There is a negative relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills and age, while controlling for all other factors.

Hypothesis$_{A3}$: There is no relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills and gender, while controlling for all other factors.

Hypothesis$_{A4}$: There is no relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills and level of education, while controlling for all other factors.

Hypothesis$_{A5}$: There is no relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills and insurance status, while controlling for all other factors.

Hypothesis$_{A6}$: There is a negative relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills and the number of medications, while controlling for all other factors.

Hypothesis$_{A7}$: There is a negative relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills and the number of co-morbid disease states, while controlling for all other factors.

Hypothesis$_{A8}$: There is a positive relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills and their self-rated health status level, while controlling for all other factors.

Hypothesis$_{A9}$: Compared to Spanish-speaking patients who need an interpreter, Spanish-speaking patients who do not need an interpreter have a higher level of satisfaction with their clinical pharmacists' communication skills, while controlling for all other factors.

Hypothesis$_{A10}$: Compared to Spanish-speaking patients who are not offered a Spanish-speaking interpreter, Spanish-speaking patients who are offered a Spanish-speaking interpreter have a higher level of satisfaction with their clinical pharmacists' communication skills, while controlling for all other factors.

Hypothesis$_{A11}$: Compared to Spanish-speaking patients who have pharmacists with a lower frequency of understanding, Spanish-speaking patients who have pharmacists with a higher frequency of understanding have a higher level of satisfaction with their clinical pharmacists' communication skills, while controlling for all other factors.

Hypothesis$_{A12}$: Compared to Spanish-speaking patients who have a lower frequency of understanding, Spanish-speaking patients who have a higher frequency of understanding have a higher level of satisfaction with their clinical pharmacists' communication skills, while controlling for all other factors.

Hypothesis$_{A13}$: There is no relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills and pharmacists' cultural factors, while controlling for all other factors.

Hypothesis$_{A14}$: There is no relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills and pharmacists' race/ethnicity, while controlling for all other factors.

4. To determine whether Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity is related to the participant-rated pharmacists' Spanish proficiency while controlling for socio-demographic factors (i.e., age, gender, education, and insurance), clinical factors (i.e., number of medications, number of co-morbid disease states, and self-rated health status), communication factors (i.e., interpreter needed, interpreter offered, pharmacists' understanding, and patients' understanding), pharmacists' cultural factors (i.e., cultural rapport and knowledge of CAMs), and the pharmacists' race/ethnicity.

   Hypothesis$_{B1}$: There is a positive relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity and participant-rated pharmacists' Spanish proficiency ratings, while controlling for all other factors.

   Hypothesis$_{B2}$: There is a negative relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity and age, while controlling for all other factors.

Hypothesis$_{B3}$: There is no relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity and gender, while controlling for all other factors.

Hypothesis$_{B4}$: There is no relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity and level of education, while controlling for all other factors.

Hypothesis$_{B5}$: There is no relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity and insurance status, while controlling for all other factors.

Hypothesis$_{B6}$: There is a negative relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity and the number of medications, while controlling for all other factors.

Hypothesis$_{B7}$: There is a negative relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity and the number of co-morbid disease states, while controlling for all other factors.

Hypothesis$_{B8}$: There is a positive relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity and their self-rated health status level, while controlling for all other factors.

Hypothesis$_{B9}$: Compared to Spanish-speaking patients who need an interpreter, Spanish-speaking patients who do not need a Spanish-speaking interpreter have a

higher level of satisfaction with their clinical pharmacists' demonstration of cultural sensitivity, while controlling for all other factors.

Hypothesis$_{B10}$: Compared to Spanish-speaking patients who are not offered a Spanish-speaking interpreter, Spanish-speaking patients who are offered a Spanish-speaking interpreter have a higher level of satisfaction with their clinical pharmacists' demonstration of cultural sensitivity, while controlling for all other factors.

Hypothesis$_{B11}$: Compared to Spanish-speaking patients who have pharmacists with a lower frequency of understanding, Spanish-speaking patients who have pharmacists with a higher frequency of understanding have a higher level of satisfaction with their clinical pharmacists' demonstration of cultural sensitivity, while controlling for all other factors.

Hypothesis$_{B12}$: Compared to Spanish-speaking patients who have a lower frequency of understanding, Spanish-speaking patients who have a higher frequency of understanding have a higher level of satisfaction with their clinical pharmacists' demonstration of cultural sensitivity, while controlling for all other factors.

Hypothesis$_{B13}$: There is no relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity and pharmacists' cultural factors, while controlling for all other factors.

Hypothesis$_{B14}$: There is no relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity and pharmacists' race/ethnicity, while controlling for all other factors.

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CHAPTER 2

Study Methodology

INTRODUCTION

The purpose of this chapter is to describe the methodology that was utilized to examine Spanish-speaking patients' satisfaction with their primary clinical pharmacists' communication skills and demonstration of cultural sensitivity. This chapter provides details regarding the study population and settings, recruitment and data collection procedures, dependent study variables, independent study variables, survey instrument development, and statistical analyses.

STUDY POPULATION AND SETTINGS

A convenience sample of self-reported Spanish-speaking patients aged 18 years and older was obtained at ambulatory care clinics in Austin, Texas. The inclusion criteria included: (a) patients who utilized CommUnityCare clinics in Austin, Texas; (b) patients who were self-reported Spanish speakers with limited or no English proficiency; and (c) patients 18 years or older. At the end of the clinic visit, the clinical pharmacist pre-screened eligible patients by asking the following two screening questions: (1) "Do you prefer to speak in Spanish or in English with me?" and (2) "How would you rate your ability to speak English?" Responses to this question included: *I cannot speak English, poor (know a few words in English), fair (know a few phrases in English), good (can hold a small conversation in English),* or *excellent (fluent in English)* (Appendices A and B). For the first question, patients who answered "English" were not eligible for the study,

and patients who answered "Spanish" were asked to answer the second question, which measured their level of English proficiency. Patients who answered the second question as *I cannot speak English, know a few words in English,* or *know a few phrases in English* were categorized as having limited or no English proficiency and were eligible for the study (Table 2.1) as long as all other inclusion criteria were met.

Table 2.1: Screening Questions for Study Inclusion

Variable	Operational Definition	Response Category
Language preference	Do you prefer to speak in Spanish or in English with me?	Eligible=Spanish Not Eligible=English
English proficiency	How would you rate your ability to speak English?	Eligible=I cannot speak English, I know a few words in English, or I know a few phrases in English Not Eligible=I can hold a small conversation in English or I am fluent in English

A sample size of 170 participants was needed, and this estimation was based on the equation $N \geq 50 + 8m$ (where m represented the number of independent variables).[1] A total of 15 predictor variables (or independent variables) were used in the study. With at least 170 participants, a type I error could occur five times out of a 100, and a type II error could occur 20 times out of 100. The calculation of the sample size did not include

a response rate correction factor as patients were encouraged to complete the survey at the clinic site.

RECRUITMENT AND DATA COLLECTION PROCEDURES

Strict adherence to all procedures allowed for the protection of the study's human subjects. Study approval was granted by The University of Texas at Austin Institutional Review Board (Appendix C). The recruitment of Spanish-speaking participants was conducted by the clinical pharmacists at each CommUnityCare clinic site after the clinic visit. Permission to access CommUnityCare sites was obtained prior to the start of the study (Appendix D).

Once the Spanish-speaking patient was screened and was deemed eligible based on the inclusion criteria, the clinical pharmacist handed the patient the study's survey and cover letter. The clinical pharmacist then read the following script in Spanish (see Appendices A and B):

> "Thank you for answering the questions. Please help us improve our services by completing our short survey on patient satisfaction. We will use your feedback to improve our services for Spanish-speaking patients. It is anticipated that it will take you approximately 15 minutes to complete this survey. Your responses to all questions will remain anonymous and kept in a confidential and secure manner. No personal identifiers will be recorded, and this survey cannot be traced back to you. All information is used for evaluation purposes only, and we will not share the data with anyone outside our research team. If you agree to take this survey, please complete it in the clinic, and take it down to your patient assistance program representative. Your representative may also help you read the survey if necessary. As a token of appreciation, you will receive a $5 Walmart gift card upon completion of your survey. Once you have filled out your survey, please alert your patient assistance program representative, and place your folded survey in the sealed box."

Once the script was read, the clinical pharmacist directed the patient to a patient assistance program representative. The Spanish-speaking patient was given a chance to read the cover letter describing the study prior to completing the survey (Appendices E and F). At any time, the patient was given the option to refuse participation in the study.

The anonymous surveys were labeled with the name of the corresponding clinic site at the bottom, left-hand side of each survey page. The surveys were expected to be completed on-site, and Spanish-speaking participants with low literacy had the option of requesting assistance from a clinic representative (e.g., patient assistance program representative), a family member, or friend who read the survey in its entirety out loud. Upon completion of the survey, participants were instructed to place their completed surveys in a sealed drop-box in the clinic. All Spanish-speaking participants' surveys remained anonymous and were kept confidential. For their time and effort, study participants received a $5 Walmart gift card after completion of the survey.

The recruitment of clinical pharmacists occurred at the specified ambulatory clinics, and only the clinical pharmacists who provided care for surveyed Spanish-speaking participants were asked to participate. Clinical pharmacists completed a two-item survey self-rating his or her Spanish proficiency and declaring his or her race/ethnicity. The clinical pharmacist was also given a chance to read the cover letter describing the study prior to completing the survey (Appendix G). At anytime, the clinical pharmacist was given the option to refuse participation in the study. After the survey was completed, the clinical pharmacist placed it in the sealed drop-box. All clinical pharmacists' surveys were kept confidential and in a secure manner.

STUDY VARIABLES AND SURVEY INSTRUMENT

The Spanish version of the "Survey of Patient Satisfaction with Pharmacy Services" was provided to all Spanish-speaking study participants after recruitment (Appendices H and I). The survey was nine pages long and was estimated to take approximately 15 minutes to complete (based on survey pre-testing by native and non-native Spanish speakers). The survey was originally written in English, and it was translated into Spanish by a trained translator and then back-translated into English by another translator. The original English version and the back-translated version were compared for discrepancies. Since the administered surveys were in Spanish, pre-testing with native and non-native Spanish speakers provided for opportunities to correct readability and understanding.

The corresponding survey for clinical pharmacists was provided to all clinical pharmacists who provided care for any Spanish-speaking study participant (Appendix J). The survey was two pages long and was estimated to take approximately two minutes to complete (based on pre-testing with English-speaking pharmacists). The survey was written in English, and pre-testing ensured readability and understanding. The final survey for the clinical pharmacists was administered in English only. Each pharmacist survey was labeled with his or her corresponding clinic site at the bottom, left-hand side of each survey page.

Objectives

The primary objective of the study was to assess the perceptions of Spanish-speaking patients regarding their perceived satisfaction with their primary clinical pharmacists' communication skills and demonstration of cultural sensitivity. Other objectives of the study were to describe the characteristics of clinical pharmacists that are important to Spanish-speaking patients, the self-rated and participant-rated Spanish proficiency of clinical pharmacists, the race/ethnicity of clinical pharmacists, and the socio-demographic, clinical, communication, and descriptive factors of Spanish-speaking patients.

Dependent Variables

The two primary dependent variable constructs were participants': (1) *satisfaction with clinical pharmacists' communication skills* and (2) *satisfaction with clinical pharmacists' demonstration of cultural sensitivity.* The satisfaction items of both dependent variable constructs were assessed using an ordinal scale, where participant responses included: *extremely dissatisfied, dissatisfied, satisfied,* and *extremely satisfied.* The response *does not apply* was added to selected items of the second dependent variable (Table 2.2).

The first dependent variable construct assessed participants' *satisfaction with clinical pharmacists' communication skills.* This construct was composed of six items that measured Spanish-speaking patients' perceived satisfaction with their clinical pharmacists' ability to: (a) listen to health concerns, (b) answer all questions, (c) provide

medication counseling, (d) provide explanations about disease states, (e) provide follow-up instructions, and (f) fully understand what is communicated. Satisfaction items were based on survey questions previously utilized by Morales et al.[2] and Lee et al.[3] The reliability and validity of the items used by Morales et al. were previously established by Hays et al.,[4] where an acceptable coefficient alpha score of 0.85 and significant product moment correlations were reported. However, Hays et al.'s[4] reliability and validity are based on a 33-item subscale, and the reliability and validity of the surveys' items were not previously assessed by Lee et al.[3] Items were modified to reflect the participants' opinions about their communication with their clinical pharmacist.

The second dependent variable construct assessed was participants' *satisfaction with clinical pharmacists' demonstration of cultural sensitivity.* This construct was composed of nine items that measured Spanish-speaking participants' perceived satisfaction with their clinical pharmacists' demonstration of: (a) respect, (b) kindness, (c) friendliness, as well as their clinical pharmacists' understanding of: (d) the participants' overall culture, (e) the importance of family opinion in healthcare decisions, (f) use of folk healers or someone similar to a folk healer, (g) use of herbal teas and herbal treatments, (h) use of home remedies, and (i) use of prayer as healing. Study participants had the option of answering items (e) through (i) as *does not apply,* which created sample size problems due to case-wise deletion. Therefore, a *modified satisfaction with clinical pharmacists' demonstration of cultural sensitivity* scale, which included items (a) through (d), was used to circumvent the problem of low sample size. Satisfaction items were based on survey questions previously utilized by Sleath et al.,[5]

and the reliability and validity of the survey questions were not previously assessed by the authors. In the current study, items were modified from the original scale by Sleath et al.[5] to reflect participants' opinions about their clinical pharmacists. Items regarding cultural normative values (i.e., *familismo, respeto, simpatía,* and *personalismo*), folk healers or someone similar to a folk healer, herbal teas and herbal treatments, and home remedies were added due to their cultural prominence throughout the literature regarding Latino patients.[6-8]

Table 2.2: Spanish-Speaking Participants' Dependent Variables

Variable	Operational Definition	Response Category
Satisfaction with clinical pharmacists' communication skills	Spanish-speaking participant's satisfaction with their clinical pharmacist's ability to: -Listen to health concerns -Answer all questions -Provide medication counseling -Provide explanation about disease state(s) -Provide follow-up instructions -Fully understand what is communicated Total Number of Items: 6	1=Extremely dissatisfied 2=Dissatisfied 3=Satisfied 4=Extremely satisfied
Satisfaction with clinical pharmacists' demonstration of cultural sensitivity	Spanish-speaking participant's satisfaction with their clinical pharmacist's: -Demonstration of respect -Demonstration of kindness -Demonstration of friendliness -Overall understanding of culture -Understanding of the importance of family opinion in healthcare decisions* -Understanding of the use of folk healers or someone similar to a folk healer* -Understanding of the use of herbal teas and herbal treatments* -Understanding of the use of home remedies* -Understanding of the use of prayer as healing* Total Number of Items: 9 (for non-modified construct) and 4 (for the modified construct)	1=Extremely dissatisfied 2=Dissatisfied 3=Satisfied 4=Extremely satisfied 99=Does not apply* *Option only applies to starred items. (Starred items are not included in the *modified construct*.)

Independent Variable

The primary independent variable in this study was *participant-rated pharmacists' Spanish proficiency*. Participants rated their clinical pharmacists' Spanish proficiency to determine the *participant-rated pharmacists' Spanish proficiency*.

Specifically, Spanish-speaking participants were asked, "How would you rate your clinical pharmacist's ability to speak Spanish?" Responses were measured on the following ordinal scale as: *cannot speak Spanish, poor (knows a few words in Spanish), fair (knows a few phrases in Spanish), good (can hold a small conversation in Spanish),* or *excellent (fluent in Spanish).* Pharmacists who received ratings less than *excellent* were not considered to be fluent in Spanish (Table 2.3).

Table 2.3: Spanish-Speaking Participants' Primary Independent Variable

Variable	Operational Definition	Response Category
Participant-rated pharmacists' Spanish proficiency	How would you rate your clinical pharmacist's ability to speak Spanish?	1=Cannot Speak Spanish 2=Poor (knows a few words in Spanish) 3=Fair (knows a few phrases in Spanish) 4=Good (can hold a small conversation in Spanish) 5=Excellent (fluent in Spanish) Recoded as: 0=Fluent (Excellent) 1=Not Fluent (Cannot speak Spanish, Poor, Fair, or Good)

Socio-Demographic Factors

Age

Participant *age* was measured with a single survey item which asked, "What year were you born?" Participant age was calculated by subtracting the participant's birth

year from 2011. This provided a continuous, interval-scaled numerical value equal to 18 or higher, which was used to determine the participant's age (in years) (Table 2.4).

Gender

Participant *gender* was measured through a single survey item which asked, "What is your gender?" Participant responses were measured on a dichotomous, nominal scale as either *female* or *male* (Table 2.4).

Education

Participant *education* was measured through the use of a single survey item which asked, "Which of the following best describes your highest level of education?" Participant responses were measured on an ordinal scale as *did not attend school, kindergarten or elementary, middle school, some high school, high school diploma or GED,* or *more than high school.* Responses were recoded as *did not attend school, kindergarten or elementary school, and middle school or higher* (Table 2.4).

Insurance Status

The *insurance* status of each participant was measured through a single survey item which asked, "What type of health insurance do you have?" Participant responses were measured on a nominal scale as *private insurance, Medicaid, CHIP, Medicare, MAP/sliding scale card, no insurance/self-pay,* or *not sure* (Table 2.4).

Table 2.4 Spanish-Speaking Participants' Socio-Demographic Factors

Variable	Operational Definition	Response Category
Age	Age at index	Years (continuous)
Gender	Female or Male	0=Female 1=Male
Education	Range from did not attend school, kindergarten or elementary, middle school, some high school, high school diploma or GED, more than high school	1= Did not attend school 2=Kindergarten or elementary 3=Middle school 4=Some high school 5=High school diploma or GED 6=More than high school Recoded as: 1=Did not attend school 2=Kindergarten or elementary 3=Middle school or higher (middle school, some high school, high school diploma or GED, or more than high school)
Insurance	Private insurance, Medicaid, CHIP, Medicare, No insurance/self-pay, Not sure	1= Private insurance 2=Medicaid 3=CHIP 4=Medicare 5=MAP/Sliding Scale Card 6=No insurance/self-pay 7=Not sure

Clinical Factors

Number of Medications

The *number of medications* that each participant utilizes was measured through a single survey item asking, "How many medications do you take? Please include prescription, non-prescription, and herbal medications." Participant responses were measured on an ordinal scale as *1-2, 3-4, 5-6, 7-8, 9-10,* or *more than 10* (Table 2.5), where higher numbers indicated greater numbers of medications.

Number of Co-Morbid Diseases

The *number of co-morbid diseases* that each participant suffered from was measured through a single survey item asking, "Do you have any of the following medical conditions? Check all that apply." Participants checked each of the following disease states that applied: *diabetes/high blood sugar, hypertension/high blood pressure, depression, high cholesterol,* or *other illness (specify)*. All checked boxes were summed and total scores were reported as continuous, ratio-scaled numerical values (Table 2.5).

Self-Rated Health Status

Participants reported their *self-rated health status*. This was measured through the use of a single survey item asking, "How would you rate your overall health?" Participant responses were measured on a 4-point ordinal scale as *poor* = 1, *fair* = 2, *good* = 3, or *excellent* = 4 (Table 2.5). The responses ranged from 1 to 4, where higher numbers indicated better health.

Table 2.5: Spanish-Speaking Participants' Clinical Factors

Variable	Operational Definition	Response Category
Number of medications	Summated Numerical Value of self-reported prescription, non-prescription, and herbal medications.	1=1-2 2=3-4 3=5-6 4=7-8 5=9-10 6=More than 10
Number of co-morbid disease states	Each checked category = 1 point: diabetes/high blood sugar; hypertension/high blood pressure; depression; high cholesterol; other illness (specify)	Summated Numerical Value
Self-rated health status	How would you rate your overall health?	1=Poor 2=Fair 3=Good 4=Excellent

Communication Factors

Interpreter Need

Participants' need for a Spanish-speaking interpreter, *interpreter needed*, was measured through a single survey item asking, "Did you need a Spanish-speaking interpreter during any visits with the clinical pharmacist?" Participant responses were measured on a nominal scale as (1) *no, my clinical pharmacist speaks Spanish;* (2) *no, my*

family member or friend interpreted for me; (3) *no, a clinic staff member interpreted for me;* or (4) *yes*. Responses were recoded as (1) No (*no, my clinical pharmacists speaks Spanish; no, my family member interpreted for me;* and *no, a clinic staff member interpreted for me*) or (2) Yes (Table 2.6).

Interpreter Offered

Each participant reported whether an interpreter was offered at their clinic visit, *interpreter offered*. This variable was measured through a single survey item asking, "If you needed a Spanish-speaking interpreter, were you offered one?" Participant responses were measured on a nominal scale as (1) *no,* (2) *yes,* or (3) *no, I did not need an interpreter* (Table 2.6).

Interpreter Type

Participants reported their preference for *interpreter type* (Table 2.6). This was measured through a single survey item asking, "Who would you most prefer to help interpret information?" Participant responses were measured on a nominal scale as *a professional interpreter, a clinical pharmacist who speaks Spanish, a clinic staff member who speaks Spanish, a family member or friend, a telephone interpreter,* or *other (specify).*

Participants' Perceptions of Pharmacists' Understanding

Participants reported their perceptions of their *pharmacists' understanding* (Table 2.6). This variable was measured through a single survey item asking, "How often does

your clinical pharmacist fully understand what you are trying to say about your medications and health conditions?" Participant responses were measured on a 4-point ordinal scale as either *never* = 1, *sometimes* = 2, *often* = 3, or *always* = 4. The responses ranged from 1 to 4, where higher numbers indicated a greater frequency of understanding by the pharmacist.

Participants' Understanding of Pharmacists' Communication

Participants also reported their perceptions about their own understanding of their clinical pharmacists' communication, referred to as *patients' understanding* (Table 2.6). This variable was measured through a single survey item asking, "How often do you fully understand what your clinical pharmacist is trying to say about your medications and health conditions?" Participant responses were measured on a 4-point ordinal scale as either *never* = 1, *sometimes* = 2, *often* = 3, or *always* = 4. The responses ranged from 1 to 4, where higher numbers indicated a greater frequency of understanding by the participant.

Table 2.6: Spanish-Speaking Participants' Communication Factors

Variable	Operational Definition	Response Category
Interpreter needed	Did you need a Spanish-speaking interpreter during any visits with the clinical pharmacist?	1=No, my clinical pharmacist speaks Spanish. 2=No, my family member or friend interpreted for me. 3=No, a clinic staff member interpreted for me. 4=Yes

		Recoded as: 0=No (no, my clinical pharmacist speaks Spanish; no, my family member or friend interpreted for me; or no, a clinic staff member interpreted for me) 1=Yes
Interpreter offered	If you needed a Spanish-speaking interpreter, were you offered one?	1=No 2=Yes 3=No, I did not need an interpreter
Preference for interpreter type	Who would you most prefer to help interpret information?	1=A professional interpreter 2=A clinical pharmacist who speaks Spanish 3=A clinic staff member who speaks Spanish 4=A family member or friend 5=A telephone interpreter 6=Other, (specify)
Pharmacists' understanding	How often does your clinical pharmacist fully understand what you are trying to say about your medication and health condition?	1=Never 2=Sometimes 3=Often 4=Always
Participants' understanding	How often do you fully understand what your clinical pharmacist is trying to say about your medication and health condition?	1=Never 2=Sometimes 3=Often 4=Always

Pharmacists' Cultural Factors

Study participants rated the importance of the following cultural factors of his or her primary care clinical pharmacist using two subscales. The first subscale, consisting of seven items, assessed *cultural rapport*, and the second subscale, consisting of three items, assessed *knowledge of complementary and alternative medicines (CAMs)*. Participants responded to the question, "How important are the following characteristics of your clinical pharmacist?" For the first subscale, items included the pharmacist: 1) speaks Spanish, 2) is Hispanic or Latino, 3) provides written information in Spanish, 4) is respectful, 5) is kind, 6) is friendly, and 7) is understanding of the importance of family opinion in healthcare decisions. For the second subscale, items included the pharmacist: 8) is knowledgeable about folk healers, 9) is knowledgeable about herbal teas and herbal treatments, and 10) is knowledgeable about home remedies. Participant responses were measured on a 4-point ordinal scale as *not at all important* = 1*, somewhat important* = 2*, important* = 3*,* and *very important* = 4. Questions about *pharmacists' cultural factors* were derived from a study conducted by Sleath et al.,[5] and questions were modified to reflect the participants' opinions about their clinical pharmacist. Other items pertaining to cultural normative values (i.e., *familismo*), folk healers, herbal treatments, and home remedies were added based on their cultural prominence throughout the literature regarding Latino patients.[6-8] *Cultural rapport* and *knowledge of CAMs* were also utilized as interval-scaled variables during inferential statistical analysis (Table 2.7).

Table 2.7: Pharmacists' Cultural Factors

Variable	Operational Definition	Response Category
Pharmacists' Cultural Factors	How important are the following characteristics of your clinical pharmacist: -The pharmacist speaks Spanish. -The pharmacist is Hispanic or Latino. -The pharmacist provides written information in Spanish. -The pharmacist is respectful. -The pharmacist is kind. -The pharmacist is friendly. -The pharmacist understands the importance of family opinion in healthcare decisions. -The pharmacist is knowledgeable about folk healers. -The pharmacist is knowledgeable about herbal teas and herbal treatments. -The pharmacist is knowledgeable about home remedies. Total # Items: 10	1=Not at all important 2=Somewhat important 3=Important 4=Very Important

Clinical Pharmacists' Variables

Self-Rated Pharmacists' Spanish Proficiency

Self-rated pharmacists' Spanish proficiency was measured through the use of a 5-point scale, where the clinical pharmacist of each Spanish-speaking participant self-rated his or her own Spanish proficiency. Specifically, clinical pharmacists were asked, "How would you rate your ability to speak Spanish with your Spanish-speaking patients?"

Responses included: *cannot speak Spanish* = 1, *poor (know a few words in Spanish)* = 2, *fair (know a few phrases in Spanish)* = 3, *good (can hold a small conversation in Spanish)* = 4, or *excellent (fluent in Spanish)* = 5 (Table 2.8).

Race/Ethnicity

Each clinical pharmacist reported his or her *race/ethnicity* (Table 2.8). This was measured through a single survey item asking, "What is your race/ethnicity?" Clinical pharmacist responses were measured on a nominal scale as *White, Hispanic, Black or African American, Asian or Pacific Islander, American Indian or Alaska Native,* or *Other (specify)*.

Table 2.8: Clinical Pharmacists' Variables

Variable	Operational Definition	Response Category
Self-rated pharmacists' Spanish proficiency	How would you rate your ability to speak Spanish with your Spanish-speaking patients?	1=Cannot Speak Spanish 2=Poor (know a few words in Spanish) 3=Fair (know a few phrases in Spanish) 4=Good (can hold a small conversation in Spanish) 5=Excellent (fluent in Spanish)
Race/ Ethnicity	What is your race/ethnicity?	1=White 2=Hispanic 3=Black or African American 4=Asian or Pacific Islander 5=Native American or Alaska Native 6=Other, (specify) Recoded as: 0=Hispanic 1=Not Hispanic (White, Black or African American, Asian or Pacific Islander, Native American or Alaska Native, Other

STATISTICAL ANALYSIS OF DATA

After data collection was completed, the survey data were coded, and statistical analyses were performed using Predictive Analytics SoftWare 18® (PASW). An alpha level of 0.05 was used to determine significance for all statistical tests.

Multicollinearity

Multicollinearity between independent variables was assessed in order to determine if the predictors were correlated among themselves. Multicollinearity could substantially affect study results by inflating the standard deviation of a regression weight and decreasing power. Statistics were used to determine the degree of multicollinearity between independent variables, where tolerance = $1 - R^2$. R^2 represents the proportion of variance in the first variable that is shared with the second variable.[9] A tolerance of less than 0.10 or a variance inflation factor (1 divided by tolerance) greater than 10 was used to indicate multicollinearity.[1] If there was significant collinearity between variables, only one variable was utilized in the multiple linear regression analyses.

Validity of Pharmacists' Spanish Proficiency Ratings

The ratings for the *participant-rated pharmacists' Spanish proficiency* were compared to the ratings for the *self-rated pharmacists' Spanish proficiency*. The Spanish proficiency of each clinical pharmacist was measured by both a self-rating and by their participants' ratings in order to determine if perceptions of proficiency were similar between the clinical pharmacists and study participants. Specifically, convergent validity was measured using a Spearman's correlation coefficient, and it was hypothesized that there was a significantly positive correlation between *patient-rated pharmacists' Spanish proficiency* scores and *self-rated pharmacists' Spanish proficiency* scores.[10] The correlation coefficient was compared to the conventional cut-values of > 0.5, 0.3 to 0.5,

or < 0.3 to determine whether the coefficient was indicative of a large, moderate, or small correlation, respectively.[11]

Descriptive Statistics for Objectives 1 and 2

Mean scores were calculated for the two dependent variables, and a coefficient alpha (or Cronbach's alpha) was used to determine their internal consistency.[12] Coefficient alpha scores ranged from 0 to 1, and higher scores represented higher construct reliability. Coefficient alpha scores of ≥ 0.7 were considered to represent acceptable reliability.[13]

The two dependent variable constructs, *satisfaction with clinical pharmacists' communication skills* and *satisfaction with clinical pharmacists' demonstration of cultural sensitivity*, were measured on an interval scale. Interval scale responses were coded (*extremely dissatisfied* = 1 to *extremely satisfied* = 4) and summed to create a construct score. Since the dependent variables were on an interval scale, if the distributions lacked violations of skewness and kurtosis, then parametric statistics were utilized. Analyses of descriptive statistics such as frequencies, mean scores, and standard deviations (SDs) were also assessed.

Descriptive statistics such as means, SDs, and frequencies were provided for the first objective, which described Spanish-speaking patients' satisfaction with communication skills and cultural sensitivity, self-rated and participant-rated Spanish proficiency of clinical pharmacists, the race/ethnicity of clinical pharmacists, and the socio-demographic, clinical, and communication factors of Spanish-speaking patients.

Variables that measured satisfaction characteristics of Spanish-speaking patients included: *satisfaction with clinical pharmacists' communication skills* and *satisfaction with clinical pharmacists' demonstration of cultural sensitivity.* Variables that measured socio-demographic characteristics of Spanish-speaking patients included: *age, gender, education,* and *insurance.* Variables that measured clinical factors of Spanish-speaking patients included: *number of medications, number of co-morbid disease states,* and s*elf-rated health status.* Variables that measured communication factors of Spanish-speaking patients included: *interpreter needed, interpreter offered, interpreter type, pharmacists' understanding,* and *participants' understanding*. Clinical pharmacists' race and ethnicity were measured by the *race/ethnicity* variable. The descriptive statistics and the correlation between *patient-rated pharmacists' Spanish proficiency* and *self-rated pharmacists' Spanish proficiency* were also described under Objective 1 (Table 2.9).

Table 2.9: Objective 1

Variables	Measurement Level	Statistical Procedure
Objective 1: To describe Spanish-speaking patients' satisfaction with communication skills and cultural sensitivity, self-rated and participant-rated Spanish proficiency of clinical pharmacists, the race/ethnicity of clinical pharmacists, and the socio-demographic, clinical, and communication factors of Spanish-speaking patients.		
Participants' satisfaction with their clinical pharmacists' communication skills*	Interval	Descriptive Statistics: Means, SDs, Frequencies
Participants' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity*	Interval	
Participant-rated pharmacists' Spanish proficiency**	Ordinal	*Also included coefficient alpha
Self-rated pharmacists' Spanish proficiency**	Ordinal	
Race/Ethnicity	Nominal	
<u>Socio-demographic Factors</u>		
Age	Continuous	**Also included Spearman's Correlation
Gender	Nominal	
Education	Ordinal	
Insurance	Nominal	
<u>Clinical Factors</u>		
Number of medications	Ordinal	
Number of co-morbid disease states	Continuous	
Self-rated health status	Ordinal	
<u>Communication Factors</u>		
Interpreter needed	Nominal	
Interpreter offered	Nominal	
Interpreter type	Nominal	
Pharmacists' understanding	Ordinal	
Participants' understanding	Ordinal	

Also, descriptive statistics, specifically frequencies, were provided for the second objective which described the cultural factors of clinical pharmacists that are important to Spanish-speaking patients. Specifically, participants were asked to rate pharmacist characteristics on a 4-point scale, where responses ranged from *not at all important* = 1 to *very important* = 4.

Since *pharmacists' cultural factors* were used as a construct, a Principle Components Analysis (PCA) was conducted to determine the number of scales within the construct. It was estimated that a sample size of 170 participants was needed for multiple regression analyses, and this sample size would also suffice for PCA. Prior to performing PCA, the data were also assessed to identify missing data, normality, linearity, outliers, and a correlation matrix with at least one correlation > 0.30. Principle components extraction allowed for the most variance of the observed variables to be explained. An orthogonal rotation was utilized since it was conceptualized that the factors were not correlated. Eigenvalues > 1 and a scree plot were used as a cut-value to determine the number of components to retain.[1,14] Finally, coefficient alphas were computed to determine the internal consistency among the items within each construct subscale[14] (Table 2.10).

Table 2.10: Objective 2

Variables	Measurement Level	Statistical Procedure
Objective 2: To describe the cultural factors of clinical pharmacists that are important to Spanish-speaking patients.		
How important are the following characteristics of your clinical pharmacist: -The pharmacist speaks Spanish. -The pharmacist is Hispanic or Latino. -The pharmacist provides written information in Spanish. -The pharmacist is respectful. -The pharmacist is kind. -The pharmacist is friendly. -The pharmacist understands the importance of family opinion in health care decisions. -The pharmacist is knowledgeable about folk healers. -The pharmacist is knowledgeable about herbal teas and herbal treatments. -The pharmacist is knowledgeable about home remedies.	 Ordinal Ordinal Ordinal Ordinal Ordinal Ordinal Ordinal Ordinal Ordinal Ordinal	Descriptive Statistics: Means, SDs, Frequencies Principle Components Analysis Coefficient alpha(s)

Statistical Analysis Using Multiple Linear Regression

Multiple linear regression analyses were used to determine whether there were relationships between the dependent variables and the independent variables. Based on the number of dependent variables, two regression equations were used. The first regression equation provided the best association between *satisfaction with clinical pharmacists' communication skills* and the independent variables, and the second regression equation provided the best association between *satisfaction with clinical pharmacists' demonstration of cultural sensitivity* and the independent variables. The

independent variables (or predictor variables) in each analysis included: *participant-rated pharmacist's Spanish proficiency* and the covariates (i.e., *age, gender, education, insurance, number of medications, number of co-morbid disease states, self-rated health status, interpreter needed, interpreter offered, pharmacists' understanding, participants' understanding, pharmacists' cultural factors,* and *pharmacists' race/ethnicity*). The p-value for each regression beta-weight was examined, and beta-weights with p-values <0.05 were considered significant predictors of the dependent variable. Also, the squared multiple correlation (R^2), or the coefficient of determination, showed the proportion of variability of the dependent variable that was explained by the independent variables in the model.[9]

Assumptions of Multiple Linear Regression

Four assumptions were met prior to utilizing multiple linear regression analyses, as violations of these assumptions increase the overall type I alpha rate and lead to incorrect study conclusions. Firstly, the assumption of normal distribution of the residuals (difference between the predicted and obtained dependent variable scores) around each predicted dependent variable score was met. This assumption was checked through scatter plots and histograms. Secondly, the assumption of a linear relationship between the predicted dependent variable scores and the residual scores was met. This assumption was checked through scatter plots of predicted dependent variable scores by the residuals scores, where a non-curvilinear scatter plot was indicative of a linear relationship. Thirdly, the assumption of homoscedasticity (variances of the residuals for

every dependent variable score were equal) was met. This was checked through scatter plots of the predicted dependent variable scores by the residuals scores, and residuals distributions with equal band widths was indicative of homoscedasticity. Lastly, the assumption that residuals are independent of each other was met since participants received individual treatments, and participants responded individually to the survey within a short period of time.[9]

Multiple Linear Regression Equations for Objectives 3 and 4

Listed below are the two multiple linear regression equations that were used to determine the relationships between the two dependent variables and the independent variables (Tables 2.11 and 2.12).

Regression Equations

$$Y_1 = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \beta_9X_9 + \beta_{10}X_{10} + \beta_{11}X_{11} + \beta_{12}X_{12} + \beta_{13}X_{13} + \beta_{14}X_{14} + \beta_{15}X_{15}$$

$$Y_2 = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \beta_9X_9 + \beta_{10}X_{10} + \beta_{11}X_{11} + \beta_{12}X_{12} + \beta_{13}X_{13} + \beta_{14}X_{14} + \beta_{15}X_{15}$$

Variables Defined

Y_1 = *satisfaction with clinical pharmacists' communication skills*

Y_2 = *satisfaction with clinical pharmacists' demonstration of cultural sensitivity*

β_0 = *intercept*

X_1 = *participant-rated pharmacists' Spanish proficiency*

X_2 = *age*

X_3 = *gender*

X_4 = *education*

X_5 = *insurance*

X_6 = *number of medications*

X_7 = *number of co-morbid disease states*

X_8 = *self-rated health status*

X_9= *interpreter needed*

X_{10}= *interpreter offered*

X_{11}= *pharmacists' understanding*

X_{12}= *participants' understanding*

X_{13}= *cultural rapport*

X_{14}= *knowledge of CAMs*

X_{15}= *pharmacists' race/ethnicity*

Table 2.11: Objective 3

Hypothesis	D.V.	Measurement Level	I.V.	Measurement Level	Statistical Procedure
Objective 3: To determine whether Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills is related to participant-rated pharmacists' Spanish proficiency while controlling for socio-demographic factors (i.e., age, gender, education, and insurance), clinical factors (i.e., number of medications, number of co-morbid disease states, and self-rated health status), communication factors (i.e., interpreter needed, interpreter offered, pharmacists' understanding, and participants' understanding), pharmacists' cultural factors (i.e., cultural rapport and knowledge of CAMs), and the pharmacists' race/ethnicity.					
H_{0A1}: There is no relationship between participant-rated pharmacists' Spanish proficiency and Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills after controlling for the covariates.	*Satisfaction with clinical pharmacists' communication skills*	Interval	*Participant-rated pharmacists' Spanish proficiency* <u>Covariates:</u> *-Age* *-Gender* *-Education* *-Insurance* *-Number of medications* *-Number of co-morbid disease states* *-Self-rated health status* *-Interpreter needed* *-Interpreter offered* *-Pharmacists' understanding* *-Participants' understanding* *-Cultural rapport* *-Knowledge of CAMs* *-Pharmacists' race/ethnicity*	Ordinal Continuous Nominal Ordinal Nominal Continuous Continuous Ordinal Nominal Nominal Ordinal Ordinal Interval Interval Nominal	Multiple Regression

Table 2.12: Objective 4

Hypothesis	D.V.	Measurement Level	I.V.	Measurement Level	Statistical Procedure
Objective 4: To determine whether Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity is related to the participant-rated pharmacists' Spanish proficiency while controlling for socio-demographic factors (i.e., age, gender, education, and insurance), clinical factors (i.e., number of medications, number of co-morbid disease states, and self-rated health status), communication factors (i.e., interpreter needed, interpreter offered, pharmacists' understanding, and patients' understanding), pharmacists' cultural factors (i.e., cultural rapport and knowledge of CAMs), and the pharmacists' race/ethnicity.					
H_{0B1}: There is no relationship between participant-rated pharmacists' Spanish proficiency and Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity after controlling for the covariates.	*Satisfaction with clinical pharmacists' demonstration of cultural sensitivity*	Interval	*Participant-rated pharmacists' Spanish proficiency* <u>Covariates:</u> *-Age* *-Gender* *-Education* *-Insurance* *-Number of medications* *-Number of co-morbid disease states* *-Self-rated health status* *-Interpreter needed* *-Interpreter offered* *-Pharmacists' understanding* *-Participants' understanding* *-Cultural rapport* *-Knowledge of CAMs* *-Pharmacists' race/ethnicity*	Ordinal Continuous Nominal Ordinal Nominal Continuous Continuous Ordinal Nominal Nominal Ordinal Ordinal Interval Interval Nominal	Multiple Regression

Hypothesis Testing

For objectives 3 and 4, a total of 28 hypotheses were tested (14 hypotheses per objective). The relationships between the dependent variable and the independent variables were tested using multiple regression analyses, controlling for the other independent variables in the model. Both objectives were tested at an alpha level of 0.05.

Also, reduced multiple regression models were run using independent variables that were correlated with each dependent variable. Bivariate correlations between the independent variables and the dependent variables were assessed, and independent variables with correlations at the ≤ 0.25 significance level were utilized in the parsimonious models.

CHAPTER 2 BIBLIOGRAPHY

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CHAPTER 3

Results

INTRODUCTION

The purpose of this chapter is to report the results of this study, which assessed Spanish-speaking patients' satisfaction with clinical pharmacists' communication skills and demonstration of cultural sensitivity. Firstly, this chapter describes the socio-demographic, clinical, and communication factors of Spanish-speaking participants. Secondly, the *pharmacists' cultural factors* construct is described, and the procedures and results (the number of subscales within the construct) using exploratory factor analysis is provided. Also, the internal consistency within each subscale is reported. Thirdly, *pharmacists' race/ethnicity*, *self-rated pharmacists' Spanish,* and *participant-rated pharmacists' Spanish proficiency* are described, and a Spearman's correlation between the two Spanish proficiency rating scores was calculated. Fourthly, the participants' satisfaction scores regarding their clinical pharmacists' communication skills and demonstration of cultural sensitivity are reported. The internal consistency of the two dependent variable constructs was also assessed using coefficient alpha scores. Finally, the procedures and results of the hypothesis testing using multiple regression analyses are described.

In order to conduct multiple regression analyses using a predetermined number of study predictors, it was estimated that an *a priori* convenience sample size of 170

participants was needed. A total of 93 surveys were collected from August 2011 to January 2012. Spanish-speaking participants were included if they: (a) utilized a CommUnityCare clinic in Austin, Texas; (b) were self-reported Spanish speakers with limited or no English proficiency; and (c) were 18 years or older.

Five CommUnityCare Health Center sites in Austin, Texas were utilized: South Austin Health Center, Northeast Austin Health Center, North Central Health Center, Rosewood Zaragosa Health Center, and Oak Hill Health Center. Due to clinic restructuring, all patients receiving clinical pharmacist services at the Northeast Austin Health Center were transferred to the North Central Health Center mid-study. Therefore, the majority of study participants (67.7%) received services from these two sites. Other study participants received clinical pharmacist services from the South Austin Health Center (17.2%), the Rosewood Zaragosa Health Center (6.5%), and the Oak Hill Health Center (8.6%) (Table 3.1).

Table 3.1: Clinic Site

Austin CommUnityCare Clinics	N	Percent (%)
North Central Health Center	32	34.4
Northeast Health Center	31	33.3
South Austin Health Center	16	17.2
Oak Hill Health Center	8	8.6
Rosewood Zaragosa Health Center	6	6.5
Total	93[a]	100.0

[a]All surveys were labeled with the clinic site, so all participants were accounted for.

Objective 1:

To describe Spanish-speaking patients' satisfaction with communication skills and cultural sensitivity, self-rated and participant-rated Spanish proficiency of clinical pharmacists, the race/ethnicity of clinical pharmacists, and the socio-demographic, clinical, and communication factors of Spanish-speaking patients.

SOCIO-DEMOGRAPHIC FACTORS

The socio-demographic variables of the Spanish-speaking participants included *age, gender, education,* and *insurance*. Tables 3.2 through 3.5 provide the descriptive statistics for each variable (e.g., means, standard deviations, and frequency distributions). Descriptions of the socio-demographic variables were associated with the first study objective.

Age and Gender

The average age of the Spanish-speaking participants was 52.0 years (SD = 14.3) with a range of 21 to 89 years. The majority of participants (72.6%) were between the ages of 31 and 60 years. Approximately, 15.4 percent of the participants were over the age of 70 years (Table 3.2). The majority of the participants (65.9%) were female (Table 3.3).

Table 3.2: Mean, Frequency Distribution, and Percent of Age

Age	N	Percent (%)
21-30	3	3.3
31-40	15	16.5
41-50	27	29.7
51-60	24	26.4
61-70	8	8.8
> 70	14	15.4
Total	91[a]	100.1[b]
Mean Age (SD): 52.0 (14.3)		

[a]2 participants did not answer this question.
[b]Total exceeds 100.0 due to rounding error.

Table 3.3: Frequency Distribution and Percent of Gender Categories

Gender	N	Percent (%)
Female	58	65.9
Male	30	34.1
Total	88[a]	100.0

[a]5 participants did not answer this question.

Education

The majority of Spanish-speaking participants (41.8%) had a kindergarten or elementary school education. Approximately 17.6 percent received no formal education, and 6.6 percent obtained a high school diploma or GED (Table 3.4). For the statistical analysis purposes, education was recoded into three categories: did not attend school, kindergarten or elementary school, or middle school or higher (Table 3.5).

Table 3.4: Frequency Distribution of Highest Level of Education Obtained

Education Level	**N**	**Percent (%)**
Did not attend school	16	17.6
Kindergarten or elementary school	38	41.8
Middle school	25	27.5
Some high school	2	2.2
High school diploma or GED	6	6.6
More than high school	4	4.4
Total	91[a]	100.1[b]

[a]2 participants did not answer this question.
[b]Total exceeds 100.0 due to rounding error.

Table 3.5: Frequency Distribution and Percent of Highest Level of Education Obtained Recoded

Education Level Recoded	**N**	**Percent (%)**
Did not attend school	16	17.6
Kindergarten or elementary school	38	41.8
Middle school education or higher[c]	37	40.7
Total	91[a]	100.1[b]

[a]2 participants did not answer this question.
[b]Total exceeds 100.0 due to rounding error.
[c]Included: Middle school, some high school, high school diploma or GED, and more than high school.

Insurance

All study participants utilized one or more forms of public insurance. Most participants (90.0%) utilized the Medical Access Program (MAP) insurance or a sliding scale card provided by the City of Austin for low income patients. Other participants utilized Medicare (2.2%), Medicaid (2.2%), or both Medicare and Medicaid (5.6%) (Table 3.6). Since all participants utilized some form of public insurance, this variable was not utilized in hypotheses testing.

Table 3.6: Frequency Distribution and Percent of Health Insurance Type

Insurance Type	N	Percent (%)
MAP[a] or sliding scale cards	81	90.0
Medicare and Medicaid	5	5.6
Medicare	2	2.2
Medicaid	2	2.2
CHIP[b]	0	0.0
Private insurance	0	0.0
No insurance or self-pay	0	0.0
Not sure	0	0.0
Total	92[c]	100.0

[a] MAP = Medical Access Program
[b]CHIP = Children's Health Insurance Program
[c]1 participant did not answer this question.

CLINICAL FACTORS

The clinical variables of the Spanish-speaking participants included: *number of medications, number of co-morbid disease states,* and *self-rated health status*. Tables 3.7 through 3.9 provide the descriptive statistics for each variable (e.g., means, standard deviations, and frequency distributions). Description of the clinical variables is associated with the first study objective.

Number of Medications

Study participants were asked to report the number of medications (herbal, over-the-counter, and prescription) that they utilize. The largest subset of participants (26.1%) utilized 5 to 6 medications. Approximately 9.8 percent utilized >10 medications (Table 3.7).

Table 3.7: Frequency Distribution and Percent of the Number of Medications Utilized

Number of Medications	**N**	**Percent (%)**
0	1	1.1
1-2	16	17.4
3-4	18	19.6
5-6	24	26.1
7-8	15	16.3
9-10	9	9.8
>10	9	9.8
Total	92[a]	100.1[b]

[a]1 participant did not answer this question.
[b]Total exceeds 100.0 due to rounding error.

Number of Co-Morbid Disease States

On average, study participants suffered from 2.5 (SD=1.4) co-morbid diseases. The most common medical condition reported by the study participants was diabetes/high blood sugar at 82.6 percent. Approximately 57.6 percent of participants reported high cholesterol, 46.7 percent had hypertension/high blood pressure, and 21.7 percent had depression. Twenty-seven participants (29.3%) reported one or more other illnesses, such as pain, arthritis, thyroid disease, cancer, asthma, lupus, eye disease, other heart disease, circulatory problems, and knee, spine and back problems (Table 3.8).

Table 3.8: Mean, Frequency Distribution, and Percent of the Number of Co-Morbid Diseases

Co-Morbid Diseases	**N[a]**	**Percent (%)**
Diabetes or high blood sugar	76	82.6
High cholesterol	53	57.6
Hypertension or high blood pressure	43	46.7
Other Illness(es)[b]	27	29.3
Depression	20	21.7
Total N=92; Mean Number of Co-Morbid Diseases (SD): 2.5 (1.4)		

[a]1 participant did not answer this question.
[b]Other illnesses included: pain, arthritis, thyroid disease, cancer, asthma, lupus, eye disease, other heart disease, circulatory problems, and knee, spine and back problems.

Self-Rated Health Status

Spanish-speaking participants reported, on average, a "fair" overall health status (mean=2.3, SD=0.7). The majority of participants reported their overall health status as either "fair" (64.8%) or "good" (20.9%). Few participants reported a "poor" (7.7%) or an "excellent" overall health status (6.6%) (Table 3.9).

Table 3.9: Mean, Frequency Distribution, and Percent of Self-Rated Overall Health Status

Self-Rated Overall Health Status[a]	**N**	**Percent (%)**
Poor	7	7.7
Fair	59	64.8
Good	19	20.9
Excellent	6	6.6
Total	91[b]	100.0
Mean Overall Health Status (SD)[a]: 2.3 (0.7)		

[a]1=Poor to 4=Excellent
[b]2 participants did not answer this question.

COMMUNICATION FACTORS

The communication-related variables collected were *interpreter needed, interpreter offered, interpreter type, pharmacists' understanding, and participants' understanding*.

Tables 3.10 through 3.15 provide the descriptive statistics for each variable (e.g., means, standard deviations, and frequency distributions). Description of all communication factors, except for *interpreter type*, is associated with the first study objective.

Interpreter Needed

When study participants were asked whether they needed a Spanish-speaking interpreter during any visits with the clinical pharmacist, the majority of participants (83.3%) reported, "No, my clinical pharmacist speaks Spanish." Other participants responded that they did not need an interpreter since a family member or friend (3.3%) or that a clinical staff member (5.6%) helped interpret for them. Seven participants (7.8%) reported needing an interpreter (Table 3.10). For statistical analyses, interpreter needed was recoded into two categories: No (No, the clinical pharmacist speaks Spanish; no, a family member or friend interpreted for me; or no, a clinic staff member interpreted for me) and Yes (Table 3.11).

Table 3.10: Frequency Distribution and Percent of Participant Need for Interpreter

Interpreter Needed	N	Percent (%)
No, the clinical pharmacist speaks Spanish	75	83.3
No, a clinic staff member interpreted for me	5	5.6
No, a family member or friend interpreted for me	3	3.3
Yes	7	7.8
Total	90[a]	100.0

[a]3 participants did not answer this question.

Table 3.11: Frequency Distribution and Percent of Participant Need for Interpreter Recoded

Interpreter Needed Recoded	N	Percent (%)
No	83	92.2
Yes	7	7.8
Total	90[a]	100.0

[a]3 participants did not answer this question.

Interpreter Offered

When study participants were asked whether they were provided with a Spanish-speaking interpreter if one was needed, 12.1 percent reported "No," 40.7 percent reported "Yes," and 47.3 percent reported "No, I did not need an interpreter" (Table 3.12). There were some discrepancies when interpreting the responses of this question. Therefore, interpreter offered was not utilized during hypotheses testing.

Table 3.12: Frequency Distribution and Percent of Whether the Clinic Offered an Interpreter

Interpreter Offered	**N**	**Percent (%)**
No	11	12.1
Yes	37	40.7
No, I did not need an interpreter	43	47.3
Total	91[a]	100.1[b]

[a]2 participants did not answer this question.
[b]Total exceeds 100.0 due to rounding error.

Interpreter Type

Participants were asked, "Who would you most prefer to help interpret information?" The majority of participants (64.1%) preferred to receive interpretation from a clinical pharmacist who speaks Spanish. Thirteen participants (14.1%) preferred interpretation from a clinical staff member, and seven participants (7.6%) preferred the

services of a professional interpreter. Other participants preferred a family member or friend (5%), a telephone interpreter (1.1%), or other (7.6%). Other kinds of interpreters included a combination of interpreters listed below, such as a clinical pharmacist and a clinic staff member who speaks Spanish, a professional interpreter and a family member or friend who speaks Spanish, a professional interpreter plus both a clinical pharmacist and clinic staff member who speaks Spanish, or all interpreters below except for a professional interpreter (Table 3.13).

Table 3.13: Frequency Distribution and Percent of Preference for Interpreter Type

Interpreter Type Preferred	**N**	**Percent (%)**
A clinical pharmacist who speaks Spanish	59	64.1
A clinic staff member who speaks Spanish	13	14.1
A professional interpreter	7	7.6
Other[a]	7	7.6
A family member or friend	5	5.4
A telephone interpreter	1	1.1
Total	92[b]	99.9[b]

[a]Other interpreters included combinations of several types of interpreters listed.
[b]1 participant did not answer this question.
[c]Total does not equal 100.0 due to rounding error.

Participants' Perceptions of Pharmacists' Understanding

Participants were asked, "How often does your clinical pharmacist fully understand what you are trying to say about your medications and health conditions?" Participants believed that their clinical pharmacist "often" to "always" understood their verbal communication concerning medications and health conditions (mean=3.6, SD=0.7). The majority of participants reported that their pharmacists "always" (73.3%) or "often" (14.4%) understood their pharmacists' verbal communication. Only one participant (1.1%) reported that the clinical pharmacist "never" understood what was said by the participant (Table 3.14).

Table 3.14: Mean, Frequency Distribution, and Percent of Participants' Perception of Pharmacists' Understanding

Pharmacists' Understanding	**N**	**Percent (%)**
Never	1	1.1
Sometimes	10	11.1
Often	13	14.4
Always	66	73.3
Total	90[a]	100.1[b]
Mean Pharmacists' Understanding (SD): 3.6 (0.7)[c]		

[a]3 participants did not answer this question.
[b]Total does not add up to 100.0 due to rounding error.
[c]1=Never, 2=Sometimes, 3=Often, 4=Always

Participants' Understanding of Pharmacists' Communication

Similarly, participants were asked, "How often do you fully understand what your clinical pharmacist is trying to say about your medications and health conditions?" On average, participants "often" to "always" understood their clinical pharmacists' verbal communication about medications and health conditions (mean=3.7, SD=0.7). Over three-fourths of the participants (79.3%) "always" understood their clinical pharmacists' verbal communication. Only one participant (1.1%) "never" understood what was said by their clinical pharmacist (Table 3.15).

Table 3.15: Mean, Frequency Distribution, and Percent of Participants' Understanding of Pharmacists' Communication

Participants' Understanding	**N**	**Percent (%)**
Never	1	1.1
Sometimes	8	8.7
Often	10	10.9
Always	73	79.3
Total	92[a]	100.0
Mean Participants' Understanding (SD): 3.7 (0.7)[b]		

[a]1 participant did not answer this question.
[b]1=Never, 2=Sometimes, 3=Often, 4=Always

Objective 2:

To describe the cultural factors of clinical pharmacists that are important to Spanish-speaking patients.

The second objective of the study was to describe the cultural factors of clinical pharmacists that are important to Spanish-speaking patients. Table 3.17 provides the descriptive statistics for the construct, *pharmacists' cultural factors* (e.g., means, standard deviations, and frequency distributions). An exploratory factor analysis was used to determine the number of factors (or subscales) within the construct, and coefficient alphas were calculated for each subscale to determine its internal consistency.

Study participants were asked to rate a series of pharmacist characteristics using the following scale: *"very important"* = 4, *"important"* = 3, *"somewhat important"* = 2, and *"not at all important"* = 1. On average, participants believed that it was "important" to "very important" for the pharmacist to speak Spanish, (mean=3.7, SD=0.6) with only 5.5 percent reporting "somewhat important" or lower. Many participants (48.2%) ranked having a "Hispanic or Latino" clinical pharmacist as "very important;" however, the average was "important" (mean=3.1, SD=1.1). The provision of written information in Spanish was reported as being "important" to "very important" (mean=3.6, SD=0.7), where only 5.6 percent believed this was either "somewhat important" or "not at all important." Overall, it was "important" to "very important" for clinical pharmacists to be respectful (mean=3.7, SD=0.6), kind (mean=3.6, SD=0.6), and friendly (mean=3.6, SD=0.6). Participants felt that it was "important" for clinical pharmacists to understand

the importance of family opinion in healthcare decisions (mean=3.3, SD=0.7). A little less than half of the study participants (46.3%) reported that it was "not at all important" for their clinical pharmacist to be knowledgeable about folk healers, where, on average, participants ranked this as "somewhat important" (mean=2.1, SD=1.2). Similarly, 42.9 percent believed that it was "not at all important" for their pharmacist to be knowledgeable about herbal teas and herbal treatments, where the average response was "somewhat important" (mean=2.2, SD=1.2). In general, participants ranked being knowledgeable about home remedies as "somewhat important" (mean=2.1, SD=1.1).

Factor Analysis

Prior to conducting a Principle Components Analysis (PCA), the data was assessed for limitations. Since a large portion of the data was missing and/or not applicable, a final sample size of only n=68 participants was available. Comfrey and Lee[1] suggest that, for a factor analysis, a sample of size of n=50 is "very poor" and a sample size of n=100 is "poor;" therefore, the difficulties in assessing the data using PCA were anticipated. Skewness and kurtosis were also assessed, and violations of kurtosis were found for items (a), (c), and (j). The linearity between pairs of variables was assessed using scatter plots. With ten items in the construct, 45 scatter plots were assessed, and the majority showed violations due to their non-linear relationships. No outliers were found based on inspections of box plots. A correlation matrix with each of the ten construct items was created (Table 3.16).

Table 3.16: Correlation Matrix of the Pharmacists' Cultural Factors Construct

Items[a]	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
(a)	1.00	0.40	0.49	0.26	0.45	0.37	-0.08	-0.16	-0.12	0.71
(b)	**0.40**	1.00	0.16	0.28	0.30	0.17	0.13	-0.10	-0.04	0.28
(c)	**0.49**	0.16	1.00	0.65	0.61	0.42	0.05	-0.04	0.01	0.42
(d)	0.26	0.28	**0.65**	1.00	0.79	0.42	0.16	0.08	0.05	0.26
(e)	**0.45**	**0.30**	**0.61**	**0.79**	1.00	0.50	0.23	0.10	0.07	0.50
(f)	**0.37**	0.17	**0.42**	**0.42**	**0.50**	1.00	0.31	0.31	0.28	0.31
(g)	-0.08	0.13	0.05	0.16	0.23	**0.31**	1.00	0.66	0.66	-0.03
(h)	-0.16	-0.10	-0.04	0.08	0.10	**0.31**	**0.66**	1.00	0.90	-0.19
(i)	-0.12	-0.04	0.01	0.05	0.07	0.28	**0.66**	**0.90**	1.00	-0.15
(j)	**0.71**	0.28	**0.42**	0.26	**0.50**	**0.31**	-0.03	-0.19	-0.15	1.00

[a]See Table 3.17 for each specific item.

While, many correlations between pairs of construct items exceeded the cut-value of |0.30|, PCA was not run due to the "very poor" sample size, missing data, and normality and linearity violations. Instead subscales were developed based on face validity and the patterns within the correlation matrix.[2] The first subscale, which included items (a) through (g), was identified as *cultural rapport*. The second subscale, which included items (h) through (j), was identified as *knowledge of CAMs*. Overall, the construct assessed *pharmacists' cultural factors*.

Coefficient alphas were calculated to determine the internal consistency of the construct items within each subscale. For the *cultural rapport* subscale, the coefficient

alpha score of 0.81 showed acceptable internal consistency within the items of this construct. The overall subscale mean was 3.5 (SD=0.5), where participants felt that, on average, the pharmacists' cultural rapport was "important" to "very important." For the *knowledge of CAMs* subscale, the coefficient alpha score of 0.86 showed good internal consistency within the items of this subscale. The overall subscale mean was 2.1 (SD=1.0), where participants felt that, on average, the pharmacists' knowledge of CAMs was "somewhat important." Since two subscales were identified using face validity and patterns in the correlation matrix, both *cultural rapport* and *knowledge of CAMs* were utilized as separate variables to test the hypothesis involving the *pharmacists' cultural factors* construct (Table 3.17a).

A post-hoc sub-analysis was conducted to determine if ratings of important pharmacist characteristics changed after the elimination of participants who reported that the understanding of family opinion and the use of folk healers, herbals, home remedies, and prayer did not apply to their satisfaction with cultural sensitivity. Overall, the means, standard deviations, frequencies, and coefficient alphas did not change much. Pharmacists' *cultural rapport* remained, on average, "important" to "very important" to Spanish speakers (mean=3.5, SD=0.5), and pharmacists' *knowledge of CAMs* increased to be "somewhat important" to "important" (mean=2.5, SD=1.0) to participants. The coefficient alpha scores were also similar to the previous analysis, where the internal consistency remained high at 0.80 and 0.85 for the *cultural rapport* and *knowledge of CAMs* subscales, respectively (Table 3.17b).

Table 3.17a: Means, Standard Deviations, Frequency and Percent Distributions, and Coefficient Alpha of Pharmacists' Cultural Factors Scale and Subscales

How important to you are the following characteristics of your clinical pharmacist?	N	Mean[b]	SD	Percent Distribution of Responses (%)[a] NI	SI	I	VI
Cultural Rapport Subscale							
a. Speaks Spanish.	90	3.7	0.6	1.1	4.4	22.2	72.2
b. Is Hispanic or Latino.	82	3.1	1.1	15.7	9.6	26.5	48.2
c. Provides written information in Spanish.	89	3.6	0.7	4.5	1.1	29.2	65.2
d. Is respectful.	89	3.7	0.6	1.1	1.1	29.2	68.5
e. Is kind.	89	3.6	0.6	0.0	5.6	33.7	60.7
f. Is friendly.	89	3.6	0.6	0.0	3.4	36.0	60.7
g. Understands the importance of family opinion in healthcare decisions.	89	3.3	0.7	2.2	6.7	46.1	44.9
Knowledge of CAMs Subscale							
h. Is knowledgeable about folk healers.	82	2.1	1.2	46.3	14.6	22.0	17.1
i. Is knowledgeable about herbal teas and herbal treatments.	84	2.2	1.2	42.9	16.7	22.6	17.9
j. Is knowledgeable about home remedies.	86	2.1	1.1	44.2	19.8	22.1	14.0
Cultural Rapport Subscale Mean (SD) and Coefficient Alpha:	**73[c]**	**3.5**	**0.5**	**Coefficient Alpha = 0.81**			
Knowledge of CAMs Subscale Mean (SD) and Coefficient Alpha:	**80[d]**	**2.1**	**1.0**	**Coefficient Alpha = 0.86**			

[a]NI=Not at all Important, SI=Somewhat Important, I=Important, VI=Very Important
[b]1=Not At All Important to 4=Very Important
[c]25 participants were not included due to missing values.
[d]13 participants were not included due to missing values.

Table 3.17b: Sub-Analysis: Means, Standard Deviations, Frequency and Percent Distributions, and Coefficient Alpha of Pharmacists' Cultural Factors Scale and Subscales

How important to you are the following characteristics of your clinical pharmacist?	N	Mean[b]	SD	Percent Distribution of Responses (%)[a] NI	SI	I	VI
Cultural Rapport Subscale							
a. Speaks Spanish.	37	3.6	0.6	0.0	8.1	21.6	70.3
b. Is Hispanic or Latino.	32	3.1	1.1	15.6	9.4	25.0	50.0
c. Provides written information in Spanish.	37	3.6	0.8	5.4	0.0	27.0	67.6
d. Is respectful.	36	3.7	0.5	0.0	0.0	33.3	66.7
e. Is kind.	36	3.5	0.6	0.0	5.6	36.1	58.3
f. Is friendly.	37	3.6	0.6	0.0	2.7	35.1	62.2
g. Understands the importance of family opinion in healthcare decisions.	36	3.3	0.8	2.8	8.3	41.7	47.2
Knowledge of CAMs Subscale							
h. Is knowledgeable about folk healers.	35	2.6	1.2	25.7	14.3	31.5	28.6
i. Is knowledgeable about herbal teas and herbal treatments.	35	2.4	1.2	31.4	20.0	22.9	25.7
j. Is knowledgeable about home remedies.	36	2.4	1.1	27.8	22.2	27.8	22.2
Cultural Rapport Subscale Mean (SD) and Coefficient Alpha:	**30[c]**	**3.5**	**0.5**	**Coefficient Alpha = 0.80**			
Knowledge of CAMs Subscale Mean (SD) and Coefficient Alpha:	**35[d]**	**2.5**	**1.0**	**Coefficient Alpha = 0.85**			

[a]NI=Not at all Important, SI=Somewhat Important, I=Important, VI=Very Important
[b]1=Not At All Important to 4=Very Important
[c]63 participants were not included due to missing values and/or "does not apply" responses.
[d]58 participants were not included due to missing values and/or "does not apply" responses.

PHARMACISTS' RACE/ETHNICITY

Fifty percent of the clinical pharmacists were White, and the other half were Hispanic. No clinical pharmacists in the study were Black or African American, Asian or Pacific Islander, American Indian or Alaska Native, or Other. Description of the pharmacists' race and ethnicity was associated with the first study objective (Table 18). For statistical analysis purposes, pharmacists' race/ethnicity was recoded into two categories: Hispanic and White (Table 3.19).

Table 3.18: Frequency Distribution and Percent of Pharmacists' Race/Ethnicity

Race/Ethnicity	**N**	**Percent (%)**
White	2	50.0
Hispanic	2	50.0
Black or African American	0	0.0
Asian or Pacific Islander	0	0.0
American Indian or Alaska Native	0	0.0
Other	0	0.0
Total	4[a]	100.0

[a]All pharmacists answered this question.

Table 3.19: Frequency Distribution and Percent of Pharmacists' Race/Ethnicity Recoded

Race/Ethnicity Recoded	N	Percent (%)
Hispanic	2	50.0
White	2	50.0
Total	4[a]	100.0

[a]All pharmacists answered this question.

VALIDITY OF PHARMACISTS' SPANISH PROFICIENCY

Study participants were asked to rank their clinical pharmacists' Spanish-speaking ability as either *"cannot speak Spanish"* = 1, *"knows a few words in Spanish"* = 2, *"knows a few phrases in Spanish"* = 3, *"can hold a small conversation in Spanish"* = 4, or *"fluent in Spanish"* = 5. On average, participants rated their clinical pharmacists' ability to speak Spanish as "can hold a small conversation in Spanish" to "fluent in Spanish" (mean=4.6, SD=0.7), where 71.3 percent were rated as "fluent in Spanish," 20.7 percent as "can hold a small conversation in Spanish," 6.9 percent as "knows a few phrases in Spanish." Only one participant (1.1%) reported that their clinical pharmacist could not speak Spanish.

Similarly, the clinical pharmacists were asked to self-rate their own Spanish proficiency, where three clinical pharmacists (75%) rated their ability to speak Spanish as "can hold a small conversation in Spanish" (Table 3.20). All four clinical pharmacists had received formal Spanish language training through universities, community colleges,

and Travis County Spanish language programs. Spanish language classes ranged from basic Spanish to advance medical conversational Spanish. These classes were taken prior to or at the beginning of their tenure with their clinics, and the pharmacists had been with CommUnityCare for three to seven years. For statistical analyses, participant-rated pharmacists' Spanish proficiency was recoded into two categories: fluent and not fluent (Table 3.21).

A Spearman's rho was calculated between the participant ratings and their corresponding clinical pharmacists' self-ratings. The statistical test result showed a significantly moderate correlation between the two scores ($N=87$, Spearman's $rho=0.43$, $p<0.001$). A description of pharmacists' Spanish proficiency and the Spearman's correlation was associated with the first study objective (Table 3.20).

Table 3.20: Means, Frequency and Percent Distributions, and Spearman's Correlation of Self-Rated and Participant-Rated Pharmacists' Spanish Proficiency

Rating of Pharmacists' Spanish-Speaking Ability[a]	**Participant Rating**		**Pharmacist Self-Rating**	
	N	**%**	**N**	**%**
Cannot speak Spanish	1	1.1	0	0.0
Knows a few words in Spanish	0	0.0	0	0.0
Knows a few phrases in Spanish	6	6.9	0	0.0
Can hold a small conversation in Spanish	18	20.7	3	75.0
Fluent in Spanish	62	71.3	1	25.0
Total N; Mean (SD)	**87[b]**	**4.6[c] (0.7)**	**4[d]**	**4.3[e] (0.5)**
Spearman's Rho[b] = 0.43, p<0.001				

[a]1=Cannot speak Spanish to 5=Fluent in Spanish
[b]6 participants did not answer this question.
[c]Mean and standard deviation of participant ratings.
[d]All pharmacists answered this question.
[e]Mean and standard deviation of pharmacist self-ratings.

Table 3.21: Frequency Distribution Participant-Rated Pharmacists' Spanish Proficiency Recoded

Participant-Rated Recoded	N	Percent (%)
Fluent in Spanish	62	71.3
Not Fluent in Spanish	25	28.7
Total	87[a]	100.0

[a]6 participants did not answer this question.

SATISFACTION WITH COMMUNICATION SKILLS

Spanish-speaking participants' satisfaction with their clinical pharmacists' communication skills was assessed using a 6 item construct, which measured satisfaction with the pharmacists' ability to: (a) listen to health concerns; (b) answer all questions; (c) provide medication counseling; (d) provide explanations about disease state(s); (e) provide follow-up instructions; and (f) fully understand the verbal communication of their Spanish-speaking participants. A description of the first dependent variable, *satisfaction with clinical pharmacists' communication skills,* was associated with the first study objective.

Each item was ranked by the participants as either *"extremely dissatisfied"* = 1, *"dissatisfied"* = 2, *"satisfied"* = 3, or *"extremely satisfied"* = 4. Descriptive statistics were calculated for each of the six items and included: total number of participants, means, standard deviations, and frequency distributions. The construct's overall mean

was calculated by summing each response from items (a) through (f) and then dividing by the total number of responses. The individual item means and the overall mean scores ranged from one to four. The coefficient alpha was also calculated to determine the internal consistency of the six items.

Table 3.22 provides the means, frequency distributions, and coefficient alpha score of the satisfaction with communication skills construct. Two cases had missing data within this construct. The individual means of each item was 3.6. A coefficient alpha score of 0.95 was calculated, indicating high internal consistency within the construct. The overall mean score of the construct shows that participants were, on average, "satisfied" to "extremely satisfied" with their clinical pharmacists' communication skills (overall scale mean=3.6, SD=0.5).

Table 3.22: Means, Frequency and Percent Distributions, and Coefficient Alpha of Satisfaction with Pharmacists' Communication Skills

How satisfied are you with your clinical pharmacist's ability to:	N	Mean[b]	SD	Percent Distribution of Responses (%)[a]			
				ED	D	S	ES
a. Listen to your health concerns?	92	3.6	0.5	0.0	1.1	40.2	58.7
b. Answer all your questions?	92	3.6	0.5	0.0	2.2	39.1	58.7
c. Provide medication counseling?	92	3.6	0.6	0.0	3.2	31.2	65.6
d. Provide explanation about your disease state(s)?	92	3.6	0.5	0.0	2.2	35.9	62.0
e. Provide follow-up instructions?	91	3.6	0.5	0.0	0.0	36.3	63.7
f. Fully understand what you are trying to say?	93	3.6	0.5	0.0	2.2	41.9	55.9
Overall Scale Mean:	**91[c]**	**3.6**	**0.5**				
Coefficient Alpha[c]: 0.95							

[a]ED=Extremely Dissatisfied, D=Dissatisfied, S=Satisfied, ES=Extremely Satisfied
[b]1=Extremely Dissatisfied to 4=Extremely Satisfied
[c]2 participants were not included due to missing values

SATISFACTION WITH CULTURAL SENSITIVITY

Spanish-speaking participants' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity was assessed using a 9 item construct, which measured satisfaction with the pharmacists': (a) demonstration of respect; (b) demonstration of kindness; (c) demonstration of friendliness; (d) overall understanding the Spanish-speaking participant's culture; (e) understanding of the importance of family opinion in healthcare decisions; (f) understanding of the use of folk healers or someone similar to a folk healer; (g) understanding of the use of herbal teas and herbal treatments; (h) understanding of the use of home remedies; and (i) understanding of the use of prayer as healing. A description of the second dependent variable, *satisfaction with clinical pharmacists' demonstration of cultural sensitivity,* was associated with the first study objective.

Items (a) through (d) were ranked by the participants as either *"extremely dissatisfied"* = 1, *"dissatisfied"* = 2, *"satisfied"* = 3, or *"extremely satisfied"* = 4. Items (e) through (i) utilized the above responses as well as "does not apply." Descriptive statistics were calculated for each of the nine items and included total number of participants, means, standard deviations, and frequency distributions. The construct's overall mean was calculated by summing each response from items (a) through (i) and then dividing by the total number of responses. The individual item means and the overall mean scores ranged from one to four. The coefficient alpha was also calculated to determine the internal consistency of the nine items.

Table 3.23 provides the means, frequency distributions, and coefficient alpha score of the satisfaction with cultural sensitivity construct. Fifty-six cases had missing data, responses with "does not apply," or both. The individual means of each construct item ranged from 2.9 to 3.7. A coefficient alpha score of 0.83 was calculated, indicating high internal consistency within the construct. The overall mean score of the construct shows that participants were, on average, "satisfied" with their clinical pharmacists' demonstration of cultural sensitivity (mean=3.4, SD=0.4).

Since 56 cases were not included in the descriptive statistics calculations due to missing data and/or the response of "does not apply," a modified construct using only items (a) through (d) was analyzed. Table 3.24 displays the means, frequency distributions, and coefficient alpha score of the modified satisfaction with cultural sensitivity construct. The individual means of each construct item ranged from 3.6 to 3.7. A coefficient alpha score of 0.96 was calculated, indicating high internal consistency within the modified construct. The overall mean score of the construct shows that participants were, on average, "satisfied" to "extremely satisfied" with their clinical pharmacists' demonstration of cultural sensitivity (mean=3.6, SD=0.5). Due to the large amount of missing data with the full construct, the modified cultural sensitivity construct was used as the dependent variable in objective 4.

Table 3.23: Means, Frequency and Percent Distributions, and Coefficient Alpha of Satisfaction with Pharmacists' Cultural Sensitivity

How satisfied are you with your clinical pharmacist's:				Percent Distribution of Responses (%)[a]					
	N	Mean[b,c]	SD	N	ED	D	S	ES	NA
a. Demonstration of respect?	93	3.7	0.6	93	1.1	1.1	29.0	68.8	---
b. Demonstration of kindness?	93	3.6	0.5	93	0.0	1.1	36.6	62.4	---
c. Demonstration of friendliness?	92	3.6	0.5	93	0.0	1.1	35.9	63.0	---
d. Overall understanding of your culture?	91	3.6	0.5	91	0.0	1.1	38.5	60.4	---
e. Understanding of the importance of family opinion in healthcare decisions?	85	3.5	0.5	93	0.0	0.0	48.4	43.0	8.6
f. Understanding of your use of folk healers or someone similar to a folk healer?	55	3.2	0.8	88	1.1	10.2	28.4	22.7	37.5
g. Understanding of your use of herbal teas and herbal treatments?	53	2.9	0.9	89	4.5	11.2	27.0	16.9	40.4
h. Understanding of your use of home remedies?	46	3.0	0.9	89	4.5	6.7	23.6	16.9	48.3
i. Understanding of your use of prayer as healing?	50	3.3	0.6	89	1.1	1.1	32.6	21.3	43.8
Overall Scale	**37[c]**	**3.4**	**0.4**						
Coefficient Alpha[c]: 0.83									

[a]ED=Extremely Dissatisfied, D=Dissatisfied, S=Satisfied, ES=Extremely Satisfied, NA=Does Not Apply
[b]1=Extremely Dissatisfied to 4=Extremely Satisfied
[c]56 participants were not included due to missing data and/or "does not apply" responses.

Table 3.24: Modified Table of Means, Frequency and Percent Distributions, and Coefficient Alpha of Satisfaction with Clinical Pharmacists' Cultural Sensitivity

How satisfied are you with your clinical pharmacist's:	**N**	**Mean[b]**	**SD**	**Percent Distribution of Responses (%)[a]**			
				ED	**D**	**S**	**ES**
a. Demonstration of respect?	93	3.7	0.6	1.1	1.1	29.0	68.8
b. Demonstration of kindness?	93	3.6	0.5	0.0	1.1	36.6	62.4
c. Demonstration of friendliness?	92	3.6	0.5	0.0	1.1	35.9	63.0
d. Overall understanding of your culture?	91	3.6	0.5	0.0	1.1	38.5	60.4
Overall Scale	**90[c]**	**3.6**	**0.5**				
Coefficient Alpha[c]: 0.96							

[a]ED=Extremely Dissatisfied, D=Dissatisfied, S=Satisfied, ES=Extremely Satisfied, NA=Does Not Apply
[b]1=Extremely Dissatisfied to 4=Extremely Satisfied
[c]3 participants were not included due to missing values.

DATA SCREENING PRIOR TO ANALYSIS

Multicollinearity

Multicollinearity was assessed between the 15 independent variables in order to determine if they were correlated with each other. Multicollinearity is described by a tolerance less than 0.1 or a variance inflation factor greater than 10. Collinearity diagnostics were performed and the tolerance and variance inflation factor between each pair of independent variables was assessed. None of the tolerance values were less than 0.1, and none of the variation factors were greater than 10. Since multicollinearity was not a problem, all variables were utilized in the multiple regression analysis.

Assumptions Met

Each assumption of multiple regression analysis (i.e., normality of residuals, homoscedasticity, linearity, and independence) was checked prior to statistical analyses. For each dependent variable, the distributions of the residuals were found to be normal based on histograms of the residuals and normal probability plots. The assumption of homoscedasticity was assessed for each dependent variable, and slight deviations from the rectangular shape were identified in both of the dependent variable residual scatterplots. While slight heteroscedasticity may weaken the multiple regression analysis,[3] serious heteroscedasticity did not occur; therefore, transformation of variables was not necessary. Based on the non-curved shape of the residual scatter plots of both dependent variables, the assumption of linearity of residuals was met. Finally, the

assumption of independence of residuals was met since participants received individual treatments and responded individually to the survey within a short period of time.

TESTS OF HYPOTHESES

After checking for multicollinearity and violations of assumptions, no rescoring or transformation of the data was necessary. The dependent variables did not have violations of skewness and kurtosis, and their distributions were approximately normal. Multiple regression analyses were used to test objectives 3 and 4. The purpose of the study was to assess the independent factors that are significantly related to Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills and demonstration of cultural sensitivity. The two objectives were assessed through a total of 28 hypotheses, but two hypotheses (insurance and interpreter offered) from each objective were not tested due to constraints in the data. A separate multiple regression analysis was performed for each objective. PASW® was used for statistical analyses, and the level of statistical significance was set at $\alpha = 0.05$.

Objective 3:

To determine whether Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills is related to participant-rated pharmacists' Spanish proficiency while controlling for socio-demographic factors (i.e., age, gender, education, and insurance), clinical factors (i.e., number of medications, number of co-morbid disease states, and self-rated health status), communication factors (i.e., interpreter needed, interpreter offered, pharmacists' understanding, and participants' understanding), pharmacists' cultural factors (cultural rapport and knowledge of CAMs), and the pharmacists' race/ethnicity.

The satisfaction with clinical pharmacists' communication skills regression model was significantly different from zero, $F=2.39$; $df=14,60$; $p=0.013$. Over 42 percent of the variation in satisfaction with communication skills ($R^2=0.421$) was accounted for by the fifteen independent variables, where the adjusted R^2 was over 24 percent ($R^2=0.245$). Out of all the independent variables, only age ($\beta=0.29$, $p=0.047$) and cultural rapport ($\beta=0.33$, $p=0.011$) were significantly related to satisfaction with communication skills. The results of the multiple regression analysis (e.g., unstandardized coefficients, standardized coefficients, confidence intervals and p-values) are shown in Table 3.25. Twelve hypotheses were tested for objective 3, where three hypotheses were accepted, and nine hypotheses were rejected.

Hypothesis$_{A1}$: There is a positive relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills and participant-rated pharmacists' Spanish proficiency ratings, while controlling for other factors.

The hypothesis was rejected (β=-0.13, p=0.395). This statistical result suggests that there is no relationship between satisfaction with clinical pharmacists' communication skills and participant-rated pharmacists' Spanish proficiency, while controlling for other factors.

Hypothesis$_{A2}$: There is a negative relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills and age, while controlling for all other factors.

The hypothesis was rejected (β=0.29, p=0.047). This statistical result suggests that there is not a significantly negative relationship between satisfaction with clinical pharmacists' communication skills and age, while controlling for other factors. However, there is a significantly positive relationship between satisfaction with clinical pharmacists' communication skills and age, while controlling for other factors.

Hypothesis$_{A3}$: There is no relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills and gender, while controlling for all other factors.

The hypothesis was accepted (β=0.09, p=0.495). This statistical result suggests that there is no significant relationship between satisfaction with clinical pharmacists' communication skills and gender, while controlling for other factors.

Hypothesis$_{A4}$: There is no relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills and level of education, while controlling for all other factors.

The hypothesis was accepted. The statistical result suggests that, while controlling for other factors, there is no significant difference in satisfaction with clinical pharmacists' communication skills between participants who received no formal education versus those who received a kindergarten or elementary school education (β=0.30, p=0.067) nor between participants who received no formal education versus those who received a middle school education or higher (β=0.06, p=0.745).

Hypothesis$_{A5}$: There is no relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills and insurance status, while controlling for all other factors.

This hypothesis was not tested due to homogeneity of responses.

Hypothesis$_{A6}$: There is a negative relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills and the number of medications, while controlling for all other factors.

The hypothesis was rejected (β=-0.17, p=0.230). This statistical result suggests that there is no relationship between satisfaction with clinical pharmacists' communication skills and the number of medications, while controlling for other factors.

Hypothesis$_{A7}$: There is a negative relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills and the number of co-morbid disease states, while controlling for all other factors.

The hypothesis was rejected (β=-0.10, p=0.564). This statistical result suggests that there is no relationship between satisfaction with clinical pharmacists' communication skills and the number of co-morbid disease states, while controlling for other factors.

Hypothesis$_{A8}$: There is a positive relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills and their self-rated health status level, while controlling for all other factors.

The hypothesis was rejected (β=0.08, p=0.575). This statistical result suggests that there is no relationship between satisfaction with clinical pharmacists' communication skills and self-rated health status level, while controlling for other factors.

Hypothesis$_{A9}$: Compared to Spanish-speaking patients who need an interpreter, Spanish-speaking patients who do not need an interpreter have a higher level of satisfaction with their clinical pharmacists' communication skills, while controlling for all other factors.

The hypothesis was rejected (β=-0.14, p=0.283). This statistical result suggests that there is no significant difference in satisfaction with clinical pharmacists' communication skills between participants who needed an interpreter and those who did not need an interpreter, while controlling for other factors.

Hypothesis$_{A10}$: Compared to Spanish-speaking patients who are not offered a Spanish-speaking interpreter, Spanish-speaking patients who are offered a Spanish-speaking interpreter have a higher level of satisfaction with their clinical pharmacists' communication skills, while controlling for all other factors.

This hypothesis was not tested due to discrepancies with interpreting the data.

Hypothesis$_{A11}$: Compared to Spanish-speaking patients who have pharmacists with a lower frequency of understanding, Spanish-speaking patients who have pharmacists with a higher frequency of understanding have a higher level of satisfaction with their clinical pharmacists' communication skills, while controlling for all other factors.

The hypothesis was rejected (β=-0.07, p=0.731). This statistical result suggests that there is no significant difference in satisfaction with clinical pharmacists' communication skills between participants who perceived their pharmacists to have a higher frequency of understanding and those who perceived their pharmacists to have a lower frequency of understanding, while controlling for other factors.

Hypothesis$_{A12}$: Compared to Spanish-speaking patients who have a lower frequency of understanding, Spanish-speaking patients who have a higher frequency of understanding have a higher level of satisfaction with their clinical pharmacists' communication skills, while controlling for all other factors.

The hypothesis was rejected (β=-0.22, p=0.270). This statistical result suggests that there is no significant difference in satisfaction with clinical pharmacists' communication skills between participants who had a higher frequency of understanding their pharmacists and those who had a lower frequency of understanding their pharmacists, while controlling for other factors.

Hypothesis$_{A13}$: There is no relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills and pharmacists' cultural factors, while controlling for all other factors.

The hypothesis was rejected with respect to cultural rapport (β=0.33, p=0.011). This statistical result suggests that there is a significant relationship between satisfaction with clinical pharmacists' communication skills and the importance of cultural rapport, while controlling for other factors. However, the hypothesis was supported in regard to knowledge of CAMs (β=0.13, p=0.311). There is not a significant relationship between satisfaction with clinical pharmacists' communication skills and the importance of knowledge of CAMs, while controlling for other factors.

Hypothesis$_{A14}$: There is no relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills and the clinical pharmacists' race/ethnicity, while controlling for all other factors.

The hypothesis was accepted (β=-0.12, p=0.411). This statistical result suggests that there is not a significant relationship between satisfaction with clinical pharmacists' communication skills and the clinical pharmacists' race/ethnicity, while controlling for other factors.

Table 3.25: Multiple Regression Analysis of Satisfaction with Clinical Pharmacists' Communication Skills

Variables	Unstandardized Coefficients		Standardized Coefficients	95% CI[a]		P-values
	B	Std. Error	Beta	Lower Bound	Upper Bound	
Intercept	1.34	0.64		0.05	2.64	0.043*
Covariates						
Pharmacists' Spanish Proficiency[b]	-0.13	0.15	-0.13	-0.43	0.18	0.395
Age	0.01	0.00	0.29	0.00	0.02	0.047*
Gender	0.09	0.13	0.09	-0.17	0.35	0.495
Kindergarten or Elementary School[c]	0.29	0.16	0.30	-0.02	0.60	0.067
Middle School or Higher[c]	0.05	0.16	0.06	-0.28	0.39	0.745
Number of Medications	-0.05	0.04	-0.17	-0.14	0.03	0.230
Number of Co-Morbid Diseases	0.03	0.06	0.10	-0.08	0.15	0.564
Self-Rated Health Status	0.06	0.10	0.08	-0.14	0.25	0.575
Interpreter Needed	-0.23	0.21	-0.14	-0.65	0.19	0.283
Pharmacists' Understanding	-0.05	0.13	-0.07	-0.31	0.22	0.731
Participants' Understanding	0.15	0.13	0.22	-0.12	0.42	0.270
Pharmacists' Race/Ethnicity	-0.12	0.15	-0.12	-0.42	0.17	0.411
Pharmacists' Cultural Factors						
Cultural Rapport	0.31	0.12	0.33	0.07	0.55	0.011*
Knowledge of CAMs	0.06	0.06	0.13	-0.06	0.17	0.311
F statistic=2.39; df=14,60; Model p-value=0.013*; R^2=0.421; Adjusted R^2=0.245						

[a]CI = confidence interval of unstandardized coefficients

[b]Represents pharmacists' Spanish proficiency rated by participants.

[c]Education was dummy coded as "kindergarten or elementary school" and "middle school or higher" with comparator "did not attend school."

*Indicates significance at $p<0.05$.

Objective 4:

To determine whether Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity is related to the participant-rated pharmacists' Spanish proficiency while controlling for socio-demographic factors (i.e., age, gender, education, and insurance), clinical factors (i.e., number of medications, number of co-morbid disease states, and self-rated health status), communication factors (i.e., interpreter needed, interpreter offered, pharmacists' understanding, and patients' understanding), pharmacists' cultural factors (cultural rapport and knowledge of CAMs), and the pharmacists' race/ethnicity.

The satisfaction with clinical pharmacists' demonstration of cultural sensitivity regression model was significantly different from zero, $F=3.82$; $df=14,59$; $p<0.001$. Over 54 percent of the variation in satisfaction with the demonstration of cultural sensitivity ($R^2=0.543$) was accounted for by the fifteen independent variables, where the adjusted R^2 was approximately 40 percent ($R^2=0.401$). Out of all the independent variables, only cultural rapport ($\beta=0.48$, $p<0.001$) was significantly related to satisfaction with the demonstration of cultural sensitivity. The results of the multiple regression analysis (e.g., unstandardized coefficients, standardized coefficients, confidence intervals and p-values) are shown in Table 3.26. Twelve hypotheses were tested for objective 3, where three hypotheses were accepted, and nine hypotheses were rejected.

Hypothesis$_{B1}$: There is a positive relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity and participant-rated pharmacists' Spanish proficiency ratings, while controlling for all other factors.

The hypothesis was rejected (β=-0.09, p=0.512). This statistical result suggests that there is no relationship between satisfaction with clinical pharmacists' demonstration of cultural sensitivity and participant-rated pharmacists' Spanish proficiency, while controlling for other factors.

Hypothesis$_{B2}$: There is a negative relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity and age, while controlling for all other factors.

The hypothesis was rejected (β=0.05, p=0.728). This statistical result suggests that there is no relationship between satisfaction with clinical pharmacists' demonstration of cultural sensitivity and age, while controlling for other factors.

Hypothesis$_{B3}$: There is no relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity and gender, while controlling for all other factors.

The hypothesis was accepted (β=0.07, p=0.530). This statistical result suggests that there is no significant relationship between satisfaction with clinical pharmacists' demonstration of cultural sensitivity and gender, while controlling for other factors.

Hypothesis$_{B4}$: There is no relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity and level of education, while controlling for all other factors.

The hypothesis was accepted. The statistical result suggests that, while controlling for other factors, there is no significant difference in satisfaction with clinical pharmacists' demonstration of cultural sensitivity between participants who received no formal education versus those who received a kindergarten or elementary school education (β=0.11, p=0.466) nor between participants who received no formal education versus those who received a middle school education or higher (β=-0.10, p=0.538).

Hypothesis$_{B5}$: There is no relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity and insurance status, while controlling for all other factors.

This hypothesis was not tested due to homogeneity of responses.

Hypothesis$_{B6}$: There is a negative relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity and the number of medications, while controlling for all other factors.

The hypothesis was rejected (β=-0.19, p=0.149). This statistical result suggests that there is not a significantly negative relationship between satisfaction with clinical pharmacists' demonstration of cultural sensitivity and the number of medications, while controlling for other factors.

Hypothesis$_{B7}$: There is a negative relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity and the number of co-morbid disease states, while controlling for all other factors.

The hypothesis was rejected (β=0.11, p=0.470). This statistical result suggests that there is no relationship between satisfaction with clinical pharmacists' demonstration of cultural sensitivity and the number of co-morbid disease states, while controlling for other factors.

Hypothesis$_{B8}$: There is a positive relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity and their self-rated health status level, while controlling for all other factors.

The hypothesis was rejected (β=0.03, p=0.801). This statistical result suggests that there is no relationship between satisfaction with clinical pharmacists' demonstration of cultural sensitivity and self-rated health status level, while controlling for other factors.

Hypothesis$_{B9}$: Compared to Spanish-speaking patients who need an interpreter, Spanish-speaking patients who do not need a Spanish-speaking interpreter have a higher level of satisfaction with their clinical pharmacists' demonstration of cultural sensitivity, while controlling for all other factors.

The hypothesis was rejected (β=-0.10, p=0.364). This statistical result suggests that there is no significant difference in satisfaction with clinical pharmacists' demonstration of cultural sensitivity between participants who needed an interpreter and those who did not need an interpreter, while controlling for other factors.

Hypothesis$_{B10}$: Compared to Spanish-speaking patients who are not offered a Spanish-speaking interpreter, Spanish-speaking patients who are offered a Spanish-speaking interpreter have a higher level of satisfaction with their clinical pharmacists' demonstration of cultural sensitivity, while controlling for all other factors.

This hypothesis was not tested due to discrepancies in interpreting the data.

Hypothesis$_{B11}$: Compared to Spanish-speaking patients who have pharmacists with a lower frequency of understanding, Spanish-speaking patients who have pharmacists with a higher frequency of understanding have a higher level of satisfaction with their clinical pharmacists' demonstration of cultural sensitivity, while controlling for all other factors.

The hypothesis was rejected (β=-0.05, p=0.803). This statistical result suggests that there is no significant difference in satisfaction with clinical pharmacists' demonstration of cultural sensitivity between participants who perceived their pharmacists to have a higher frequency of understanding and those who perceived their pharmacists to have a lower frequency of understanding, while controlling for other factors.

Hypothesis$_{B12}$: Compared to Spanish-speaking patients who have a lower frequency of understanding, Spanish-speaking patients who have a higher frequency of understanding have a higher level of satisfaction with their clinical pharmacists' demonstration of cultural sensitivity, while controlling for all other factors.

The hypothesis was rejected (β=0.31, p=0.084). This statistical result suggests that there is no significant difference in satisfaction with clinical pharmacists' demonstration of cultural sensitivity between participants who had a higher frequency of understanding their pharmacists and those who had a lower frequency of understanding their pharmacists, while controlling for other factors.

Hypothesis$_{B13}$: There is no relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity and pharmacists' cultural factors, while controlling for all other factors.

The hypothesis was rejected with respect to cultural rapport (β=0.48, $p<0.001$). This statistical result suggests that there is a significant relationship between satisfaction with clinical pharmacists' demonstration of cultural sensitivity and the importance of cultural rapport, while controlling for other factors. However, the hypothesis was supported with regard to knowledge of CAMs (β=0.12, $p=0.310$). There is not a significant relationship between satisfaction with clinical pharmacists' demonstration of cultural sensitivity and the importance of knowledge of CAMs, while controlling for other factors.

Hypothesis$_{B14}$: There is no relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity and the clinical pharmacists' race/ethnicity, while controlling for all other factors.

The hypothesis was accepted (β=0.08, $p=0.549$). This statistical result suggests that there is not a significant relationship between satisfaction with clinical pharmacists' demonstration of cultural sensitivity and the clinical pharmacists' race/ethnicity, while controlling for other factors.

Table 3.26: Multiple Regression Analysis of Satisfaction with Clinical Pharmacists' Demonstration of Cultural Sensitivity

Variables	Unstandardized Coefficients		Standardized Coefficients	95% CI[a]		P-values
	B	Std. Error	Beta	Lower Bound	Upper Bound	
Intercept	1.38	0.55		0.28	2.48	0.015*
Covariates						
Pharmacists' Spanish Proficiency[b]	-0.09	0.13	-0.09	-0.35	0.18	0.512
Age	0.00	0.00	0.05	-0.01	0.01	0.728
Gender	0.07	0.11	0.07	-0.15	0.29	0.530
Kindergarten or Elementary School[c]	0.10	0.13	0.11	-0.17	0.37	0.466
Middle School or Higher[c]	0.09	0.14	-0.10	-0.37	0.20	0.538
Number of Medications	-0.05	0.04	-0.19	-0.13	0.02	0.149
Number of Co-Morbid Diseases	0.04	0.05	0.11	-0.07	0.14	0.470
Self-Rated Health Status	0.02	0.08	0.03	-0.15	0.19	0.801
Interpreter Needed	-0.18	0.20	-0.10	-0.57	0.21	0.364
Pharmacists' Understanding	-0.03	0.11	-0.05	-0.25	0.20	0.803
Participants' Understanding	0.20	0.11	0.31	-0.03	0.43	0.084
Pharmacists' Race/Ethnicity	0.08	0.13	0.08	-0.18	0.33	0.549
Pharmacists' Cultural Factors						
Cultural Rapport	0.43	0.10	0.48	0.23	0.63	0.000*
Knowledge of CAMs	0.05	0.05	0.12	-0.05	0.15	0.310
F statistic=3.82; df=14,59; Model p-value<0.001*; R^2=0.543; Adjusted R^2=0.401						

[a]CI = confidence interval of unstandardized coefficients
[b]Represents pharmacists' Spanish proficiency rated by participants.
[c]Education was dummy coded as "kindergarten or elementary school" and "middle school or higher" with comparator "did not attend school."
*Indicates significance at p<0.05.

MULTIPLE REGRESSION REDUCED MODELS

Reduced models were run in order to allow for improved parsimony. Firstly, individual bivariate correlations between the independent variables and the dependent variables were assessed. Secondly, independent variables with correlations significant at the ≤0.25 level were included as independent variables in the reduced model (Tables 3.27). The reduced model for *satisfaction with clinical pharmacists' communication skills* included *participant-rated pharmacists' Spanish proficiency, gender, interpreter needed, pharmacists' understanding, participants' understanding, pharmacists' cultural factors (cultural rapport),* and *pharmacists' race/ethnicity* as the independent variables (Table 3.28). The reduced model for *satisfaction with clinical pharmacists' demonstration of cultural sensitivity* included *participant-rated pharmacists' Spanish proficiency, gender, education, self-rated health status, interpreter needed, pharmacists' understanding, participants' understanding, pharmacists' cultural factors (cultural rapport),* and *pharmacists' race/ethnicity* as the independent variables (Table 3.29).

Table 3.27: Bivariate Correlations Between Satisfaction with Clinical Pharmacists' Communication Skills, Demonstration of Cultural Sensitivity, and the Independent Variables

	Satisfaction with Clinical Pharmacists' Communication Skills Pearson's Correlation [p-value]	**Satisfaction with Clinical Pharmacists' Demonstration of Cultural Sensitivity** Pearson's Correlation [p-value]
Pharmacists' Spanish Proficiency[a]	-0.29 [0.007]*	-0.34 [0.002]*
Age	0.12 [0.268]	-0.07 [0.522]
Gender	0.16 [0.145]*	0.14 [0.189]*
Education[b]	0.09 [0.411]	0.24 [0.025]*
Number of Medications	-0.11 [0.323]	-0.08 [0.458]
Number of Co-Morbid Diseases	0.03 [0.802]	-0.05 [0.626]
Self-Rated Health Status	0.07 [0.514]	0.18 [0.095]*
Interpreter Needed	-0.19 [0.070]*	-0.20 [0.070]*
Pharmacists' Understanding	0.19 [0.068]*	0.19 [0.074]*
Participants' Understanding	0.21 [0.043]*	0.20 [0.061]*
Cultural Rapport	0.47 [0.000]*	0.54 [0.000]*
Knowledge of CAMs	0.05 [0.641]	0.13 [0.269]
Pharmacists' Race/Ethnicity	-0.15 [0.147]*	-0.18 [0.092]*

[a]Represents pharmacists' Spanish proficiency rated by the participants.
[b]Education was dummy coded as "kindergarten or elementary school" and "middle school or higher" with comparator "did not attend school."
*Independent variables at the ≤0.25 significance level were used in the reduced models.

Modified Objective 3:

To determine whether Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills is related to participant-rated pharmacists' Spanish proficiency while controlling for gender, interpreter needed, pharmacists' understanding, participants' understanding, pharmacists' cultural factors (cultural rapport), and the pharmacists' race/ethnicity.

The satisfaction with clinical pharmacists' communication skills regression model was significantly different from zero, F=3.00; df=7,67; p=0.009. Over 25 percent of the variation in satisfaction with communication skills (R^2=0.259) was accounted for by the seven independent variables, where the adjusted R^2 was 17 percent (R^2=0.173). Out of all the independent variables, only cultural rapport (β=0.39, p=0.002) was significantly related to satisfaction with communication skills. The results of the multiple regression analysis (e.g., unstandardized coefficients, standardized coefficients, confidence intervals and p-values) are shown in Table 3.28. Seven hypotheses were tested for modified objective 3, where two hypotheses were accepted, and five hypotheses were rejected.

Hypothesis$_{A1}$: There is a positive relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills and participant-rated pharmacists' Spanish proficiency ratings, while controlling for other factors.

The hypothesis was rejected (β=-0.12, p=0.418). This statistical result suggests that there is no relationship between satisfaction with clinical pharmacists' communication skills and participant-rated pharmacists' Spanish proficiency, while controlling for other factors.

Hypothesis$_{A2}$: There is no relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills and gender, while controlling for all other factors.

The hypothesis was accepted (β=0.07, p=0.522). This statistical result suggests that there is no significant relationship between satisfaction with clinical pharmacists' communication skills and gender, while controlling for other factors.

Hypothesis$_{A3}$: Compared to Spanish-speaking patients who need an interpreter, Spanish-speaking patients who do not need an interpreter have a higher level of satisfaction with their clinical pharmacists' communication skills, while controlling for all other factors.

The hypothesis was rejected (β=-0.11, p=0.353). This statistical result suggests that there is no significant difference in satisfaction with clinical pharmacists' communication skills between participants who needed an interpreter and those who did not need an interpreter, while controlling for other factors.

Hypothesis$_{A4}$: Compared to Spanish-speaking patients who have pharmacists with a lower frequency of understanding, Spanish-speaking patients who have pharmacists with a higher frequency of understanding have a higher level of satisfaction with their clinical pharmacists' communication skills, while controlling for all other factors.

The hypothesis was rejected (β=-0.05, p=0.824). This statistical result suggests that there is no significant difference in satisfaction with clinical pharmacists' communication skills between participants who perceived their pharmacists to have a higher frequency of understanding and those who perceived their pharmacists to have a lower frequency of understanding, while controlling for other factors.

Hypothesis$_{A5}$: Compared to Spanish-speaking patients who have a lower frequency of understanding, Spanish-speaking patients who have a higher frequency of understanding have a higher level of satisfaction with their clinical pharmacists' communication skills, while controlling for all other factors.

The hypothesis was rejected (β=0.14, p=0.450). This statistical result suggests that there is no significant difference in satisfaction with clinical pharmacists' communication skills between participants who had a higher frequency of understanding their pharmacists and those who had a lower frequency of understanding their pharmacists, while controlling for other factors.

Hypothesis$_{A6}$: There is no relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills and pharmacists' cultural factors, while controlling for all other factors.

The hypothesis was rejected with respect to cultural rapport (β=0.39, p=0.002). This statistical result suggests that there is a significant relationship between satisfaction with clinical pharmacists' communication skills and the importance of cultural rapport, while controlling for other factors.

Hypothesis$_{A7}$: There is no relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills and the clinical pharmacists' race/ethnicity, while controlling for all other factors.

The hypothesis was accepted (β=0.04, p=0.764). This statistical result suggests that there is not a significant relationship between satisfaction with clinical pharmacists' communication skills and the clinical pharmacists' race/ethnicity, while controlling for other factors.

Table 3.28: Multiple Regression Analysis of Satisfaction with Clinical Pharmacists' Communication Skills Reduced Model

Variables	Unstandardized Coefficients		Standardized Coefficients	95% CI[a]		P-values
	B	Std. Error	Beta	Lower Bound	Upper Bound	
Intercept	2.06	0.55		0.96	3.15	0.000*
Covariates						
Pharmacists' Spanish Proficiency[b]	-0.12	0.14	-0.12	-0.40	0.17	0.418
Gender	0.07	0.11	0.07	-0.15	0.30	0.552
Interpreter Needed	-0.19	0.20	-0.11	-0.59	0.22	0.353
Pharmacists' Understanding	-0.03	0.13	-0.05	-0.28	0.23	0.824
Participants' Understanding	0.10	0.13	0.14	-0.16	0.36	0.450
Pharmacists' Race/Ethnicity	0.04	0.13	0.04	-0.22	0.30	0.764
Pharmacists' Cultural Rapport						
Cultural Rapport	0.37	0.12	0.39	0.14	0.60	0.002*
F statistic=3.00; df=7,67; Model p-value=0.009*; R^2=0.259; Adjusted R^2=0.173						

[a]CI = confidence interval of unstandardized coefficients
[b]Represents pharmacists' Spanish proficiency rated by participants.
*Indicates significance at $p<0.05$.

Objective 4:

To determine whether Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity is related to the participant-rated pharmacists' Spanish proficiency while controlling for socio-demographic factors gender, education, self-rated health status, interpreter needed, pharmacists' understanding, patients' understanding, pharmacists' cultural factors (cultural rapport), and the pharmacists' race/ethnicity.

The satisfaction with clinical pharmacists' demonstration of cultural sensitivity regression model was significantly different from zero, $F=4.25$; $df=10,64$; $p<0.001$. Forty-four percent of the variation in satisfaction with the demonstration of cultural sensitivity ($R^2=0.440$) was accounted for by the nine independent variables, where the adjusted R^2 was nearly 34 percent ($R^2=0.337$). Out of all the independent variables, only cultural rapport ($\beta=0.48$, $p<0.001$) was significantly related to satisfaction with the demonstration of cultural sensitivity. The results of the multiple regression analysis (e.g., unstandardized coefficients, standardized coefficients, confidence intervals and p-values) are shown in Table 3.29. Nine hypotheses were tested for objective 3, where three hypotheses were accepted, and six hypotheses were rejected.

Hypothesis$_{B1}$: There is a positive relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity and participant-rated pharmacists' Spanish proficiency ratings, while controlling for all other factors.

The hypothesis was rejected (β=-0.11, p=0.455). This statistical result suggests that there is no relationship between satisfaction with clinical pharmacists' demonstration of cultural sensitivity and participant-rated pharmacists' Spanish proficiency, while controlling for other factors.

Hypothesis$_{B3}$: There is no relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity and gender, while controlling for all other factors.

The hypothesis was accepted (β=0.07, p=0.557). This statistical result suggests that there is no significant relationship between satisfaction with clinical pharmacists' demonstration of cultural sensitivity and gender, while controlling for other factors.

Hypothesis$_{B4}$: There is no relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity and level of education, while controlling for all other factors.

The hypothesis was accepted. The statistical result suggests that, while controlling for other factors, there is no significant difference in satisfaction with clinical pharmacists' demonstration of cultural sensitivity between participants who received no formal education versus those who received a kindergarten or elementary school education (β=0.15, p=0.330) nor between participants who received no formal education versus those who received a middle school education or higher (β=-0.11, p=0.479).

Hypothesis$_{B8}$: There is a positive relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity and their self-rated health status level, while controlling for all other factors.

The hypothesis was rejected (β=0.00, p=0.993). This statistical result suggests that there is no relationship between satisfaction with clinical pharmacists' demonstration of cultural sensitivity and self-rated health status level, while controlling for other factors.

Hypothesis$_{B9}$: Compared to Spanish-speaking patients who need an interpreter, Spanish-speaking patients who do not need a Spanish-speaking interpreter have a higher level of satisfaction with their clinical pharmacists' demonstration of cultural sensitivity, while controlling for all other factors.

The hypothesis was rejected (β=-0.13, p=0.243). This statistical result suggests that there is no significant difference in satisfaction with clinical pharmacists' demonstration of cultural sensitivity between participants who needed an interpreter and those who did not need an interpreter, while controlling for other factors.

Hypothesis$_{B11}$: Compared to Spanish-speaking patients who have pharmacists with a lower frequency of understanding, Spanish-speaking patients who have pharmacists with a higher frequency of understanding have a higher level of satisfaction with their clinical pharmacists' demonstration of cultural sensitivity, while controlling for all other factors.

The hypothesis was rejected (β=-0.08, p=0.689). This statistical result suggests that there is no significant difference in satisfaction with clinical pharmacists' demonstration of cultural sensitivity between participants who perceived their pharmacists to have a higher frequency of understanding and those who perceived their pharmacists to have a lower frequency of understanding, while controlling for other factors.

Hypothesis$_{B12}$: Compared to Spanish-speaking patients who have a lower frequency of understanding, Spanish-speaking patients who have a higher frequency of understanding have a higher level of satisfaction with their clinical pharmacists' demonstration of cultural sensitivity, while controlling for all other factors.

The hypothesis was rejected (β=0.25, p=0.176). This statistical result suggests that there is no significant difference in satisfaction with clinical pharmacists' demonstration of cultural sensitivity between participants who had a higher frequency of understanding their pharmacists and those who had a lower frequency of understanding their pharmacists, while controlling for other factors.

Hypothesis$_{B13}$: There is no relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity and pharmacists' cultural factors, while controlling for all other factors.

The hypothesis was rejected with respect to cultural rapport (β=0.48, p<0.001). This statistical result suggests that there is a significant relationship between satisfaction with clinical pharmacists' demonstration of cultural sensitivity and the importance of cultural rapport, while controlling for other factors.

Hypothesis$_{B14}$: There is no relationship between Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity and the clinical pharmacists' race/ethnicity, while controlling for all other factors.

The hypothesis was accepted (β=0.15, p=0.211). This statistical result suggests that there is not a significant relationship between satisfaction with clinical pharmacists' demonstration of cultural sensitivity and the clinical pharmacists' race/ethnicity, while controlling for other factors.

Table 3.29: Multiple Regression Analysis of Satisfaction with Clinical Pharmacists' Demonstration of Cultural Sensitivity Reduced Model

Variables	Unstandardized Coefficients		Standardized Coefficients	95% CI[a]		P-values
	B	Std. Error	Beta	Lower Bound	Upper Bound	
Intercept	1.67	0.54		0.60	2.75	0.003*
Covariates						
Pharmacists' Spanish Proficiency[b]	-0.10	0.13	-0.11	-0.36	0.17	0.455
Gender	0.06	0.11	0.07	-0.15	0.28	0.557
Kindergarten or Elementary School[c]	0.13	0.13	0.15	-0.14	0.40	0.330
Middle School or Higher[c]	-0.10	0.14	-0.11	-0.38	0.18	0.479
Self-Rated Health Status	0.00	0.07	0.00	-0.15	0.15	0.993
Interpreter Needed	-0.23	0.20	-0.13	-0.63	0.16	0.243
Pharmacists' Understanding	-0.05	0.11	-0.08	-0.27	0.18	0.689
Participants' Understanding	0.16	0.12	0.25	-0.07	0.40	0.176
Pharmacists' Race/Ethnicity	0.15	0.12	0.15	-0.09	0.39	0.211
Pharmacists' Cultural Rapport						
Cultural Rapport	0.43	0.10	0.48	0.23	0.64	0.000*
F statistic=4.25; df=10,64; Model p-value<0.001*; R^2=0.440; Adjusted R^2=0.337						

[a]CI = confidence interval of unstandardized coefficients
[b]Represents pharmacists' Spanish proficiency rated by participants.
[c]Education was dummy coded as "kindergarten or elementary school" and "middle school or higher" with comparator "did not attend school."
*Indicates significance at p<0.05.

CONCLUSIONS

This chapter provided the results of the descriptive statistics and multiple regression statistical analyses. In the full model that examined Spanish-speaking participants' satisfaction with their clinical pharmacists' communication skills, age and cultural rapport were significant and positive predictors of satisfaction. However, in the reduced model, only cultural rapport emerged as a significant predictor. In both the full and reduced models that examined Spanish-speaking participants' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity, cultural rapport was a significant and positive predictor of satisfaction. No other independent variables were significantly associated with the dependent variables.

CHAPTER 3 BIBLIOGRAPHY

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CHAPTER 4

Discussion and Conclusions

REVIEW OF RESEARCH QUESTIONS

Limited English Proficiency (LEP) presents as a significant barrier to healthcare services for Latinos in the U.S.[1-3] This problem has contributed to the health disparities of the Latino population, where Latinos face worse outcomes related to heart disease,[4] cancer,[5] diabetes mellitus,[6] mental health,[7] and the human immunodeficiency virus (HIV),[8] compared to whites. The inability to effectively communicate with healthcare professionals has negatively affected Latinos with LEP in the U.S. and has led to the underutilization of general healthcare services, preventative services, and follow-up visits by Latino patients.[1] Also, many Spanish-speaking Latinos with LEP have decreased medical comprehension, have increased incidences of adverse events and harm, suffer from inadequate treatment of pain, and endure problems with medication management.[9-11] Ineffective and inadequate communication between Latino patients with LEP and their healthcare providers has been well-documented, where instances of increased adverse events,[9] decreased health and medication knowledge,[11] and decreased patient satisfaction have occurred.[12]

Spanish speakers' satisfaction with healthcare services is also linked to their healthcare providers' abilities to abide by Latino cultural normative values (e.g., *simpatía* or kindness or sympathy, *personalismo* or formal friendliness, *respeto* or respect, and

familismo or the importance of family).[13,14] Also, it is important for healthcare providers to acknowledge and understand traditional Latino folk medicines, such as home remedies and complementary and alternative medicines (CAMs) that may be utilized by their Latino patients with LEP.[15-18] Spanish-speaking Latino patients in the U.S. have varying degrees of acculturation, and it is necessary for healthcare providers to recognize that lack of acculturation may influence their Latino patients' needs to experience cultural sensitivity in the healthcare setting.[19]

PURPOSE OF THE STUDY

Prior research on Spanish-speaking Latinos' satisfaction with healthcare providers' communication has primarily focused on communication with medical health professionals (e.g., primary care and emergency room physicians) and professional interpreters but not with pharmacists.[3,12,20,21] Furthermore, the importance of cultural normative values and folk medicines has been expressed in several case studies and communication articles,[13,15] yet, to our knowledge, only one pharmacy-related publication has assessed pharmacists' cultural characteristics that are important to Spanish-speaking patients.[22] The present study is the first to assess Spanish-speaking patients' satisfaction with both communication and cultural sensitivity in regards to their clinical pharmacist. This study is important to the growing population of Latinos, especially in Texas, where approximately 36.9% of Texans are of Latino origin.[23]

A self-administered survey instrument, "Survey of Patient Satisfaction with Pharmacy Services," served as the data collection instrument for the study objectives.

The survey was developed based on previous literature,[12,13,20,22,24] which reported on Spanish-speakers' satisfaction with healthcare and preferences for pharmacy services, as well as traditional cultural practices in the Latino population. All surveys were collected on-site at five different CommUnityCare Health Center clinics (South Austin, Northeast, North Central, Rosewood Zaragosa, and Oak Hill Health Centers) in Austin, Texas.

STUDY OBJECTIVE 1

To describe Spanish-speaking patients' satisfaction with communication skills and cultural sensitivity, self-rated and participant-rated Spanish proficiency of clinical pharmacists, the race/ethnicity of clinical pharmacists, and the socio-demographic, clinical, and communication factors of Spanish-speaking patients.

DESCRIPTIVE DATA

Study Sample

Self-reported Spanish-speaking patients with LEP who were at least 18 years of age and older and utilized CommUnityCare Health Center clinical pharmacist services served as the study sample. Four previous studies which assessed satisfaction with physician and interpreter communication, preferences for pharmacy services, and the cultural competency of physicians were used as the primary comparison samples.

The first study, conducted by Sleath et al.[22] was composed of a convenience sample of 93 self-reported Latino adult patients in North Carolina who utilized community pharmacy services. Participants were interviewed in Spanish and were asked

survey questions regarding language preferences and important factors associated with choosing a community pharmacy.

The second study by Morales et al.[12] included a random sample of 7,093 English-speaking and Spanish-speaking adult patients on the West Coast. Participants were mailed a copy of a self-administered survey instrument which assessed satisfaction with their healthcare providers' communication.

The third study by Lee et al.[20] was comprised of 233 adult English and Spanish speakers who utilized services at an urban, ambulatory clinic in Denver, Colorado. Participants were provided with a self-administered, post-visit survey which assessed satisfaction with communication and Spanish interpretation methods.

The fourth primary study by Fernandez et al.[24] utilized a sample of 116 Spanish-speaking patients and their 48 corresponding primary care physicians (PCPs) in San Francisco, California. PCPs were asked to rate their Spanish proficiency using a 5-point scale, provide their race/ethnicity, and report their cultural competency using a self-reported survey. Spanish-speaking participants rated their PCPs' patient-centered healthcare in relation to communication and interpersonal care; however, satisfaction was not assessed.

Next, the socio-demographic, clinical, and communication factors of the present study will be discussed in relation to these four primary studies, as well as other studies that are analogous to variables within each group of factors.

SOCIO-DEMOGRAPHIC FACTORS

All study participants were self-reported Spanish speakers with limited or no English proficiency who utilized clinics that provide healthcare for medically underserved patients. The average age of the study participants was 52 years, where 15.4 percent were over the age of 70 years. The majority of the participants were female (65.0%), had less than a high school education (86.9%), and utilized one or more forms of publicly-funded insurance (100.0%), such as Medicare, Medicaid, Medicare and Medicaid, and the City of Austin Medical Access Program or sliding scale cards.

As in the four previously described study samples,[12,20,22,24] all participants were self-reported Spanish speakers. Similarly, Lee et al.[20] utilized participants who could only communicate adequately about their healthcare in Spanish. All of the studies assessed Spanish speakers who were economically disadvantaged or had a low-income status (e.g., an annual income of $20,000 or less). The studies that measured average age and percentage of females were found to be heterogeneous; the present study sample was within the range of the studies' lowest and highest average age (34 years,[22] 40 years,[12] and 59 years[24]) and for percentage of females (56.0%,[12] 63.0%,[20] 70.0%,[24] and 71.1%[22]). However, the education levels of the participants between studies were similar, where the majority of participants had less than a high school education. The present study was different from other studies in regards to health insurance, where three studies had a large proportion of participants that did not have health insurance (36.0%,[24] 65.6%,[22] and 76.0%[20]), and the majority of participants in the fourth study utilized private insurance

(64.0%[12]). On the other hand, all studies had participants that utilized one or more forms of publicly-funded insurance.

In summary, the results were similar to other studies with Spanish-speaking patients in regards to income, insurance, average age (52 years versus 34-59 years), and percentage of females (65% versus 56-71%).[12,20,22,24] While there were small differences in health insurance status between studies, the socio-demographic factors in the present study were comparable to other studies in the literature.

CLINICAL FACTORS

The clinical factors of this study included number of medications, number of co-morbid disease states, and self-rated health status. The largest proportion of participants (26.1%) utilized 5 to 6 medications, and participants reported having an average of 2.5 co-morbid diseases, where diabetes mellitus (82.6%), high cholesterol (57.6%), hypertension (46.7%), and depression (21.7%) were the most commonly reported co-morbid disease states. The average health status of the study participants was "fair," where 7.7 percent had a "poor" health status, 64.8 percent had a "fair" health status, 20.9 percent had a "good" health status, and 6.6 percent had an "excellent" health status.

Although other similar studies[12,20,22,24] did not measure total number of medications, Linn et al.[25] reported that the number of medications participants was a significant positive predictor of dissatisfaction with medical care provided by physicians. They reported that, on average, participants utilized 4 medications,[25] whereas over one-fourth (26.1%) of the present study participants were prescribed 5 to 6 medications.

Regarding the number of co-morbid disease states, the present study was similar to Morales et al.,[12] who reported that participants had an average of two co-morbid conditions and Sleath et al.,[22] who reported that 18.3% of their participants had two co-morbid medical conditions. In addition, Sleath et al.[22] identified the same most common disease states (i.e., depression, hypertension, diabetes, and high cholesterol) as was found in the present study. Finally, health status in other similar studies[20,22] was higher ("good" compared to "fair") compared to the present study.

In summary, the differences in clinical factors were small and not likely to severely influence the final results. While there were small differences in health status between studies, the participants of the present study sample were generally as healthy as the participants in other studies. As with socio-demographic factors, clinical factors in the present study were comparable to other studies.

COMMUNICATION FACTORS

The communication factors of this study included: interpreter needed, interpreter offered, interpreter type, pharmacists' understanding, and participants' understanding. The majority of participants (92.2%) reported that they did not need an interpreter since they had (1) Spanish-speaking pharmacists, (2) Spanish-speaking clinic staff members, or (3) Spanish-speaking family members or friends; therefore, only 7.8 percent of participants needed an interpreter. Also, participants were asked a follow-up question which determined whether they were offered an interpreter if one was needed, and responses included no (21.1%), yes (40.7%); and no, I did not need an interpreter

(47.3%). The most commonly preferred person to help with interpreting information was a clinical pharmacist who speaks Spanish (64.1%). Other preferences for interpreter type included Spanish-speaking clinic staff members (14.1%), professional interpreters (7.6%), family members or friends (5.4%), telephone interpreters (1.1%), or a combination of the interpreters listed above (7.6%). On a scale from "never" = 1 to "always" = 4, participants, on average, believed that pharmacists "often" to "always" understood their verbal communication about medications and health conditions (mean=3.6, SD=0.7), and on average, participants believed they "often" to "always" understood their pharmacists' communication regarding medications and health conditions (mean=3.7, SD=0.7).

None of the four primary studies assessed whether participants needed an interpreter and whether they were offered an interpreter if one was needed. However, these issues are important since the Office for Civil Rights in the U.S. Department of Health and Human Services enforces Title VI of the Civil Rights Act of 1964, which states that persons participating in programs and activities funded by the Federal government cannot be discriminated against based on race, color, or national origin.[26] In 2000, President Clinton signed Executive Order 13166, which mandated specific changes in federally assisted programs in order to improve accessibility of language assistance services for LEP persons.[27] Ultimately, healthcare facilities that receive funds from Medicare and Medicaid and serve a large population of patients with LEP are required to provide language assistance to patients with LEP.[1] Many of CommUnityCare's patients are Spanish-speaking; therefore, the measurement of these items was warranted. One

study conducted by Mosen et al.[28] assessed whether Spanish-speaking parents needed interpretive services and found that the need for an interpreter was significantly associated with worse experiences with provider communication.

While none of the four primary studies reported whether or not participants actually received an interpreter, it seems to be a natural follow-up question to interpreter need. Unfortunately, the responses to the item on whether participants received a Spanish-speaking interpreter during their clinic visits had several discrepancies. Firstly, many participants checked both "no" and "no, I did not need an interpreter," which is confusing since the responses have opposite meanings. Eventually these participants were coded as "no, I did not need an interpreter" based on the belief that participants accidentally checked the first answer before fully reading the question. Secondly, participants who reported having a pharmacist that spoke fluently also reported that they did not receive an interpreter but needed one, which was peculiar. This may have occurred if participants believed that pharmacists who speak Spanish do not meet the traditional definition of an interpreter who professionally interprets for a living and is not a medical health professional. And finally, it was deemed that the response "no, I did not need an interpreter" may have been confusing since all participants had limited or no English proficiency and would have needed help with interpretation from someone (e.g., family, friend, pharmacists, or staff member). Therefore, this study item was not utilized due to too many discrepancies. We recommended that future surveys utilize a more valid item measuring this important concept.

Preference for the type of Spanish-speaking interpreter was assessed by Sleath et al.,[22] where participants were asked if they would rather receive verbal information: (1) in Spanish without an interpreter, (2) in Spanish with an interpreter, (3) in Spanish or English, or (4) in English. The majority of participants, approximately 52 percent, preferred to receive verbal information in Spanish without an interpreter. The present study did not assess the responses in English since all participants were Spanish-speaking with LEP; however, the majority of study participants (64.1%) preferred a Spanish-speaking pharmacist.

Finally, the frequency of pharmacists' and participants' understanding was assessed using two 4-point scale items. While none of the four primary studies assessed these items specifically, they were adapted from the study by Fernandez et al.,[24] which assessed physicians' interpersonal processes of care using a construct. One of the items in the "explanations of conditions" subscale of the construct asked participants to rate, "How often did your doctor make sure you understood your health problems?" on a scale from "never" to "always." Although the overall study did not assess satisfaction, this study's subscale was associated with physician understanding of patients' culturally-related health beliefs. We modified the question to ask, "How often do you fully understand what your clinical pharmacist is trying to say about your medications and health conditions?" Furthermore, since communication is an interpersonal process, we developed an item to determine the pharmacists' understanding of what was said by the participants in regards to their medications and health conditions.

In summary, many of the communication factors in the present study were not previously analyzed in past studies; therefore, the results of the present study may offer some insight in relation to communication factors. Firstly, CommUnityCare facilities set a good example of compliance with Title VI of the Civil Rights Act of 1964, where only a small percentage of study participants (7.8%) needed a Spanish-speaking interpreter, as the majority of participants' interpretation needs were met through Spanish-speaking pharmacists, staff members, family members, or friends. It is highly recommended that other clinics which serve high numbers of Spanish-speaking patients adopt similar levels of compliance in order to avoid poor health outcomes, which is often correlated with the lack of interpreter services.[9,14] Secondly, the results of the present study support the finding by Sleath et al.[22] that the preference for a Spanish-speaking pharmacist is very high (64.1% in the present study versus 52.0%[22]) among Spanish speakers. Consequently, pre-pharmacy students and pharmacist interns might consider the importance of Spanish language courses in order to better meet the needs of future LEP patients.

PHARMACISTS' RACE/ETHNICITY

The race/ethnicity of the four clinical pharmacists in the present study was either white (50.0%) or Hispanic (50.0%). One of the four primary studies that assessed communication with Spanish speakers found that the majority of physicians were white (69.0%), followed by Hispanics (19.0%), Asians (8.0%), and African-Americans

(4.0%).[24] Other studies pertaining to Spanish-speaking patients and pharmacists found lower distributions of Hispanic pharmacists at zero percent[29] and 1.5 percent.[30]

PHARMACISTS' SPANISH PROFICIENCY RATINGS

On a scale from "cannot speak Spanish" = 1 to "fluent in Spanish" = 5, clinical pharmacists, on average, rated their own ability to speak Spanish as "good," which was defined as "can hold a small conversation in Spanish" (mean=4.3, SD=0.5); 75 percent and 25 percent of pharmacists rated their Spanish as "good" and "fluent in Spanish," respectively. On average, participants rated their pharmacists' Spanish-speaking ability higher (mean=4.6, SD=07): 20.7 percent and 71.3 percent rated their pharmacist as "good" and "fluent in Spanish," respectively.

A study by Fernandez et al.[24] measured physicians' fluency in Spanish and found that the majority of physicians self-rated their Spanish speaking ability as either "good" or "excellent" (29.0% and 25.0%, respectively). The present study's results are more favorable compared to other studies found in the literature regarding medical students and residents, where one study[31] found that 22 percent were "proficient but not fluent" and only 10 percent were "fluent" in Spanish. Another study[21] reported that 13 percent and 5 percent of medical students rated their Spanish proficiency as "conversational" and "fluent," respectively. None of the four primary studies assessed patients' perceptions in relation to their healthcare providers' Spanish proficiency, and we perceived this as an important but overlooked aspect.

In summary, the present study was the first to assess Spanish-speaking patients' perceptions of their clinical pharmacists' ability to speak Spanish. Interestingly, in comparing pharmacists' self-ratings and participants' ratings, it was found that pharmacists underestimated their Spanish-speaking skills (mean=4.3 versus mean=4.6). It may be important to realize that pharmacists may have rated their own Spanish proficiency lower based on their perceived inability to provide conversational Spanish, whereas participants may have rated their pharmacists' ability solely on their ability to provide adequate but less taxing medical Spanish. In general, pharmacy administrators may consider the use of periodic evaluations in order to establish the Spanish proficiency level of their clinical pharmacists, so pharmacists' services may be fully utilized.

SATISFACTION WITH COMMUNICATION SKILLS

Spanish speakers' satisfaction with their clinical pharmacists' communication was measured using a scale that addressed six aspects of communication. Specifically, items measured satisfaction with the pharmacists' ability to: a) listen to health concerns; (b) answer all questions; (c) provide medication counseling; (d) provide explanations about disease state(s); (e) provide follow-up instructions; and (f) fully understand the verbal communication of their Spanish-speaking participants. All items were measured on a 4-point scale from "extremely dissatisfied" = 1 to "extremely satisfied" = 4. Items were adapted from studies in the literature that assessed Spanish-speaking patients' satisfaction with the communication of physicians, medical staff, and professional and *ad hoc* interpreters.[12,20,28,32,33]

For the first item of the communication construct, participants were, on average, "satisfied" to "extremely satisfied" with their clinical pharmacists' ability to listen to their health concerns (mean=3.6, SD=0.5), where the majority of participants were "satisfied" (40.2%) or "extremely satisfied" (58.7%). The high ratings were similar to a study conducted by Morales et al.,[12] which assessed participants' ratings regarding the medical staff's ability to listen to Spanish-speaking participants, where the majority of study participants reported ratings of "good" (28.3%), "very good" (22.5%), and "excellent" (20.4%). However, compared to English-speaking patients, Spanish speakers provided lower ratings in regards to listening, which was interpreted by the authors as lower satisfaction.[12] A study by Lee et al.[20] found that 85.0 percent of Spanish and English speakers who utilized language-concordant healthcare providers were satisfied with their healthcare providers' ability to listen during their clinic visit. Ultimately, provider listening maintained statistical significance in the multivariate model as well.[20] Finally, a study assessing satisfaction with provider communication on a 4-point scale from "never" to "always" reported that 66.7 percent of Spanish-speaking patients "always" had a doctor or healthcare provider that listened carefully. However, ratings on this communication satisfaction item were not significantly different from English-speaking patients.[28]

For the second item of the satisfaction construct, participants were, on average, "satisfied" to "extremely satisfied" with their clinical pharmacists' ability to answer all of their questions (mean=3.6, SD=0.5), where the majority of participants were "satisfied" (39.1%) or "extremely satisfied" (58.7%). Two studies assessing Spanish and English

speakers' satisfaction utilized an item that measured healthcare providers' ability to answer questions.[12,20] The first study found that 30.2 percent, 23.2 percent, and 20.0 percent rated their healthcare providers' ability to answer questions as "good," "very good," and "excellent," respectively. For this item, Spanish speakers reported significantly lower ratings than English speakers.[12] The second study reported that 84.0 percent of language-concordant patients were satisfied with their healthcare providers' ability to provide answers, where statistically significant differences in satisfaction were found for this item between language-concordant and language-discordant patients (84.0% versus 57.0%, p=0.02). The literature supports that the ability to provide answers is an important component of patient-provider communication processes.

For the third item of the satisfaction construct, participants were, on average, "satisfied" to "extremely satisfied" with their clinical pharmacists' ability to provide medication counseling (mean=3.6, SD=0.6), where the majority of participants were "satisfied" (31.2%) or "extremely satisfied" (65.6%). A few studies utilized items that measured doctors and healthcare providers' medication counseling,[12,24,32] and one study assessed the medication-related needs of Spanish-speaking monolingual patients.[34] Morales et al.[12] found that the majority of Spanish-speaking patients rated their healthcare providers' explanations about prescribed medications as either "good" (29.6%), "very good" (20.2%), or "excellent" (19.7%); however, ratings were lower compared to English-speaking patients and indicated lower satisfaction. Fernandez et al.[24] utilized a 4-item "explanations of self-care" subscale, where one item measured how often the doctor provided clear explanations regarding taking medications. Although this

item was not significantly related to language fluency and a language-culture summary scale, the authors report a small sample size and low power, which may have decreased their ability to find statistical significance.[24] A study conducted by David and Rhee[32] measured whether doctors provided explanations about medication side effects to both Spanish-speaking and English-speaking patients. When all English and Spanish speakers were assessed, a significantly smaller percent of Spanish speakers reported receiving medication-related explanations compared to English speakers (53% versus 84%, $p<0.001$). The trend in significance was the same when Spanish speakers and the subset of Latino English speakers were assessed (53% versus 88%, $p<0.001$). Ultimately, Spanish-speaking patients were significantly less satisfied with medical care compared to all English speakers (84% versus 94%, $p<0.05$) and the subset of Latino English speakers (80% versus 95%, $p<0.05$).[32] Finally, Diaz et al.[34] surveyed the needs of English- and Spanish-speaking patients at a mental health center and found that Spanish speakers reported more problems in managing medications compared to English speakers. Specifically, compared to English speakers, Spanish speakers had a significantly harder time remembering to take their medications, reading directions, getting refills, and taking a larger quantity of medications ($p<0.001$). The authors attributed these problems to language barriers between doctors and their Spanish-speaking patients. Therefore, based on the results found in the literature and the basic duties of a pharmacist, we perceived medication counseling to be a very important aspect of communication.

For the fourth item of the satisfaction construct, participants were, on average, "satisfied" to "extremely satisfied" with their clinical pharmacists' ability to provide

explanation about disease states (mean=3.6, SD=0.5), where the majority of participants were "satisfied" (35.9%) or "extremely satisfied" (62.0%). One study[24] assessed Spanish-speaking patients' perceptions of their providers' explanations of health conditions. Patients were asked to rate how often their doctors provided enough information about health problems and how often their doctors made sure they understood their health problems. Multivariate analysis results showed that these items, in the form of a construct, were significantly related to physicians' understanding of patients' culturally-related health beliefs (adjusted OR-12.53, 95% CI: 3.76-41.71). Other studies assessed whether physicians provided explanations about medical tests[12,24,32] or explanations in general.[20,24,28] However, based on the clinical pharmacists' role in disease state management,[35] we felt that a general item measuring explanations about disease states would be applicable during most visits with clinical pharmacists.

For the fifth item of the satisfaction construct, participants were, on average, "satisfied" to "extremely satisfied" with their clinical pharmacists' ability to provide follow-up instructions (mean=3.6, SD=0.5), where the majority of participants were "satisfied" (36.3%) or "extremely satisfied" (63.7%). Two studies assessed patients' understanding of the need for follow-up visits.[24,33] Survey items by Carrasquillo et al.[33] focused on whether non-English speakers were provided enough information pertaining to worsening illnesses and circumstances under which to return to the emergency department. Similarly, Fernandez et al.[24] assessed physicians' "explanations of self-care" to determine if doctors explained disease-related symptoms and when to contact them about the symptoms. Although the studies did not find significance regarding

explanation for follow-up visits, possibly due to the lack of power in one study[24] and the use of non-English and non-Spanish speakers in the other study[33], we felt that communication about follow-up visits was important for disease management of chronic diseases with clinical pharmacist services.[35]

For the sixth and final item of the satisfaction construct, participants were, on average, "satisfied" to "extremely satisfied" with their clinical pharmacists' ability to fully understand their verbal communication (mean=3.6, SD=0.5), where the majority of participants were "satisfied" (41.9%) or "extremely satisfied" (55.9%). While none of the four primary studies[12,20,22,24] assessed these items specifically, we felt that this was a valid question for the majority of the sample of clinical pharmacists whose native language was English. Two of the pharmacists who were not fluent in Spanish reported using software or other translation services to help communicate with their Spanish-speaking patients. Reading written information in Spanish was not deemed as difficult as understanding the normal-paced verbal communication of Spanish-speaking patients. Furthermore, many case studies have also reported the detrimental effects of physicians misinterpreting their Spanish-speaking patients' verbal communication.[14] Therefore, this item was deemed to be a very important aspect of patient-provider communication.

In summary, although study participants were "satisfied" to "extremely satisfied" with their clinical pharmacists' ability to listen to health concerns, answer all questions, provide medication counseling, provide explanations about disease states, provide follow-up instructions, and fully understand verbal communication in Spanish (mean=3.6, SD=0.5-0.6), several studies indicated concern regarding inadequate

communication between healthcare providers and their Spanish-speaking patients.[12,14,20,24,28,32,33] Therefore, clinical pharmacists should hone their Spanish-speaking skills in order to ensure their Spanish-speaking patients receive appropriate disease state management and sufficient care.

SATISFACTION WITH THE DEMONSTRATION OF CULTURAL SENSITIVITY

Spanish speakers' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity was addressed using a 9-item scale. Specifically, items measured satisfaction with the pharmacists' a) demonstration of respect; (b) demonstration of kindness; (c) demonstration of friendliness; (d) overall understanding of their patients' culture; (e) understanding of the importance of family opinion in healthcare decisions; (f) understanding of the use of folk healers or someone similar to a folk healer; (g) understanding of the use of herbal teas and herbal treatments; (h) understanding of the use of home remedies; and (i) understanding of the use of prayer as healing. All items were measured on a 4-point scale from "extremely dissatisfied" = 1 to "extremely satisfied" = 4. Items were adapted from studies in the literature that assessed Spanish-speaking patients' satisfaction with the services of healthcare providers and interpreters,[30,33,36-40] as well as cultural normative beliefs (e.g., *simpatía* or kindness or sympathy*, personalismo* or formal friendliness*, respeto* or respect, and *familismo* or the importance of family)[13,14,41] and traditional folk practices of Latinos in the U.S.[15,17,41,42] Some of the items that measure satisfaction with clinical pharmacists' demonstration of

cultural normative values and understanding of traditional folk practices address gaps in the literature.

For the first item of the cultural sensitivity construct, participants were, on average, "satisfied" to "extremely satisfied" with their clinical pharmacists' demonstration of respect (mean=3.7, SD=0.6), where the majority of participants were "satisfied" (29.0%) or "extremely satisfied" (68.8%). Respect, or *respeto*, is a very important and common cultural normative value held by many Latino patients.[13,41] A study that utilized focus group with Spanish speakers reported that the need for mutual respectful relationships with healthcare providers was very important to older Latinos with limited English proficiency,[37] and case studies published by Flores et al.[14] found that the lack of respect led to worse outcomes with Spanish speakers. Four studies[28,33,36,39] that assessed Spanish speakers' satisfaction with healthcare provider services utilized items that measured respect. Mosen et al.[28] surveyed how often doctors showed respect during medical visits, and 70.9 percent of patients reported always receiving respect for their comments and concerns, which was not significantly different than the results for English speakers. Similarly, Cunningham et al.[36] reported no differences between the cohort of Spanish speakers who received telephone interpreter services and the cohort that utilized *ad hoc* interpreters or no interpreters regarding physicians' demonstration of respect. However, Carrasquillo et al.[33] measured satisfaction in regards to the respect and courtesy shown by doctors and found that non-English speakers were significantly more likely to be less satisfied than English speakers. Significant differences in Spanish speakers' ratings of respect shown by their physicians were found between those who had

a Spanish-speaking doctor and those who utilized an interpreter (p=0.002) and those who needed an interpreter but did not receive one (p<0.001).[39] Demonstration of respect was found to be an important aspect of cultural sensitivity in the present study, and the literature provides many examples of the relationship between respect and satisfaction.[14,28,33,36,39]

For the second item of the cultural sensitivity construct, participants were, on average, "satisfied" to "extremely satisfied" with their clinical pharmacists' demonstration of kindness (mean=3.6, SD=0.5), where the majority of participants were "satisfied" (36.6%) or "extremely satisfied" (62.4%). Kindness, or *simpatía*, is a well-documented cultural normative value of Spanish-speaking patients.[13,41,42] Gonzalez et al.[43] found that kindness was an especially important factor in the HIV patient-provider relationship. To our knowledge, no satisfaction studies with Spanish-speaking patients utilized an item that measured kindness (*simpatía)*; however, Sleath et al.[22] measured the importance of pharmacy employees being "nice," where 59.1 percent of Latino patients rated this quality was "very important." Therefore, this item was deemed to be an important aspect of cultural sensitivity.

For the third item of the cultural sensitivity construct, participants were, on average, "satisfied" to "extremely satisfied" with their clinical pharmacists' demonstration of friendliness (mean=3.6, SD=0.5), where the majority of participants were "satisfied" (35.9%) or "extremely satisfied" (63.0%). *Personalismo*, or friendliness, is an established cultural value for Spanish speakers in the U.S.[13,43] Case studies emphasized *personalismo* and found that the lack of friendliness was detrimental to the

continuity of care for Spanish speakers.[14] A study conducted by Baker et al.[39] reported that satisfaction with friendliness was lower for Spanish-speaking patients who did not have language-concordant providers ($p<0.001$). However, the majority of those who did have language-concordant providers rated their providers' friendliness as either "excellent" (46%), "very good" (26%), or "good" (25%). Based on the results found in the literature, the friendliness item was a valid and appropriate measure of cultural sensitivity.

For the fourth item of our cultural sensitivity construct, participants were, on average, "satisfied" to "extremely satisfied" with their clinical pharmacists' overall understanding of their culture (mean=3.6, SD=0.5), where the majority of participants were "satisfied" (38.5%) or "extremely satisfied" (60.4%). This item was based on two studies[30,40] that focused on understanding the culture of Spanish-speaking patients. The first study[30] surveyed community pharmacists' cultural sensitivity toward Spanish-speaking patients on a 5-point scale and found that, on average, Atlanta pharmacists were either neutral toward or agreed with the statement that "pharmacists have a responsibility to learn the culture/language of their patients." Similarly, Kuo et al.[40] measured the attitudes of medical residents, where 94.1 percent of residents believed that understanding their patients' customs and beliefs was either "sometimes" or frequently" important for interpreters to understand. Correspondingly, 81.5 percent of Spanish-speaking patients felt that this trait was either "sometimes" or "frequently" important.[40] A gap in the literature exists in regards to Spanish-speaking patients' perceptions of

clinical pharmacists; therefore, exploration of pharmacists' overall understanding of Spanish-speaking patients' culture was merited.

For the fifth item of the cultural sensitivity construct, participants were, on average, "satisfied" to "extremely satisfied" with their clinical pharmacists' understanding of the importance of family opinion in healthcare decisions (mean=3.5, SD=0.5), where the majority of participants were "satisfied" (48.4%) or "extremely satisfied" (43.0%). However, this item did not apply to 8.6 percent of the study participants. *Familismo* refers to the overall importance of honoring the decisions of the family as a whole versus the decisions of one individual in the family,[13] and the importance of *familismo* in Latino patients with HIV, schizophrenia, and cancer have been addressed.[38,43,44] Ayanian et al. utilized a "psychosocial care" construct item that measured whether patients believed there was enough involvement of family and friends with healthcare. On average, Latino patients reported more problems with "psychosocial care" than white patients ($p<0.01$). Even though previous satisfaction studies with Spanish-speaking patients did not address the concept of *familismo*, the importance of the family unit to Latino patients is documented throughout the literature.

The last four items of the cultural sensitivity construct (e.g., the understanding of the use of folk healers, herbal teas and treatments, home remedies, and prayer as healing) were adapted from exploratory research studies[17,18] and commentary or communication papers[13,15,16,41,45] pertaining to Latino Spanish-speaking patients in the U.S. To our knowledge, no studies on Spanish speakers' satisfaction addressed these four topics. Therefore, these items were developed to close the gap in the literature. Participants

were, on average, "dissatisfied" to "satisfied" with their clinical pharmacists' understanding of the use of herbal teas and herbal treatment (mean=2.9, SD=0.9) and "satisfied" with their clinical pharmacists' understanding of the use of folk healers or someone similar to folk healers (mean=3.2, SD=0.8), home remedies (mean=3.0, SD=0.9), and prayer as healing (mean=3.3, SD=0.6). However, these items did not apply to over one-third of the sample of Spanish-speaking patients.

Due to the large number of participants that checked "does not apply," a modified cultural sensitivity construct was established. The modified construct focused on the first four items, which were previously measured in the literature, although not in regards to clinical pharmacists' cultural sensitivity. These items were modified in order to measure satisfaction and represent the first cultural sensitivity construct geared toward Spanish-speaking patients who receive services from clinical pharmacists.

In summary, although study participants considered the understanding of the importance of family opinion in healthcare decisions, the use of folk healers or someone similar to a folk healer, the use of herbal teas and herbal treatments, the use of home remedies, and prayer as healing as not applicable to their satisfaction with their pharmacists' services, participants were "satisfied" to "extremely satisfied" with their clinical pharmacists' demonstration of normative cultural values (i.e., respect, kindness, and friendliness) and overall understanding of Spanish speakers' culture (mean=3.6-3.7, SD=0.5-0.6). The lack of applicability of certain items may be due in part to participants' higher levels of acculturation or their need to separate Western and traditional medicinal practices.[18,19] However, the need for healthcare providers' support for certain cultural

normative values seems to transcend acculturation and the differentiation of Western and traditional medicine, which further support the literature[13,16] regarding Spanish speakers' cultural normative values. Therefore, it is recommended pharmacists abide by the cultural norms of Spanish-speaking Latinos by showing respect, kindness, and friendliness when interacting with these patients.

STUDY OBJECTIVE 2

To describe the cultural factors of clinical pharmacists that are important to Spanish-speaking patients.

PHARMACISTS' CULTURAL FACTORS

The cultural factors of clinical pharmacists that were important to Spanish-speaking patients were assessed using a construct that measured two subscales: *cultural rapport* and *knowledge of CAMs*. The first subscale, *cultural rapport,* was composed of 7 items that measures the importance of the following characteristics of clinical pharmacists: a) speaks Spanish; (b) is Hispanic or Latino; (c) provides written information in Spanish; (d) is respectful; (e) is kind; (f) is friendly; and (g) understands the importance of family opinion in healthcare decisions. The second subscale, *knowledge of CAMs,* measured the importance of the clinical pharmacists' (h) knowledge about folk healers; (i) knowledge about herbal teas and herbal treatments; and (j) knowledge of home remedies. Items of both subscales were measured on a 4-point scale from "not at all important" = 1 to "very important" = 4. Items were adapted primarily

from Sleath et al.[22] and studies in the literature that assessed the communication[12,20,24] with and traditional health-related practices of Spanish-speaking patients.[13,15]

For the first item of the *cultural rapport* subscale, participants felt, on average, that it was "important" to "very important" that their clinical pharmacists spoke Spanish (mean=3.7, SD=0.6), where the majority of participants felt that this characteristic was "very important" (72.2%). A study conducted by Muzyk et al.[30] found that Atlanta pharmacists generally disagreed with or were neutral toward the statement that "non-Spanish-speaking pharmacists do not have a responsibility to counsel those patients who can speak only Spanish." A strong preference for Spanish-speaking healthcare providers was documented in two studies with Spanish speakers.[22,46] In the first study, which utilized focus groups comprised of middle-aged to older Latino women, study participants believed that Spanish-speaking doctors were preferred since language-discordance remained a central barrier to accessing care.[46] Finally, Sleath et al.[22] reported that 66.7% of Latino patients felt that it was "very important" for pharmacists to speak Spanish, which was similar to the results of the present study.

For the second item of the *cultural rapport* subscale, participants felt, on average, it was "important" that their clinical pharmacists were Latino or Hispanic (mean=3.1, SD=1.1), where the majority of participants felt that this characteristic was "important" (26.5%) or "very important" (48.2%). Weitzman et al.[46] reported that middle-aged and older Latino women generally did not need their healthcare provider to be Latino as long as they were Spanish-speaking. Similarly, Sleath et al.[22] reported that 47.3 percent of Latino patients felt having a Latino pharmacist was "not at all important." In contrast to

previous findings, only 15.7 percent of the study participants felt having a Latino pharmacist was "not at all important."

For the third item of the *cultural rapport* subscale, participants felt, on average, it was "important" to "very important" that their clinical pharmacists provided written information in Spanish (mean=3.6, SD=0.7), where the majority of participants felt this characteristic was "very important" (65.2%). The results were very similar to a study by Sleath et al.,[22] where 80.6 percent of patients reported that receiving written information in Spanish was "very important." Unfortunately, while the present study shows the importance of written information in Spanish, previous studies documented that many pharmacists and pharmacies did not provide this service.[29,30,47]

For the fourth item of the *cultural rapport* subscale, participants felt, on average, it was "important" to "very important" that their clinical pharmacists were respectful (mean=3.7, SD=0.6), where the majority of participants felt this characteristic was "very important" (68.5%). The importance of respect, or *respeto*, shown by healthcare providers has been documented throughout the literature,[13,14,37,41,46] where satisfaction with care has been often linked to respect.[28,33,36,39] The results were similar to the study by Sleath et al.[22] which reported that 90.3 percent of Latino patients felt that showing respect was "very important."

For the fifth item of the *cultural rapport* subscale, participants felt, on average, it was "important" to "very important" that their clinical pharmacists were kind (mean=3.6, SD=0.6), where the majority of participants felt this characteristic was "very important" (60.7%). Sleath et al.[22] also assessed the importance of kindness with Latino patients and

reported similar results, where 59.1 percent of Latino patients believed that kind pharmacy employees were "very important." *Simpatía,* or kindness, is a very important cultural normative value held by Latinos in the U.S.[13,14,43]

For the sixth item of the *cultural rapport* subscale, participants felt, on average, it was "important" to "very important" that their clinical pharmacists were friendly (mean=3.6, SD=0.6), where the majority of participants felt this characteristic was "very important" (60.7%). Friendliness, or *personalismo,* represents another cultural normative value[13,14] that has been associated with Spanish speakers' satisfaction with provider services.[39] In the present study, friendliness was a "very important" characteristic of pharmacists for the majority of participants, and this result was similar to the study by Sleath et al.,[22] where 80.6 percent of Latino patients reported this characteristic was "very important."

For the seventh and final item of the *cultural rapport* subscale, participants felt, on average, it was "important" that their clinical pharmacists understood the importance of family opinion in healthcare decisions (mean=3.3, SD=0.7), where the majority of participants felt this characteristic was "important" (46.1%) or "very important" (44.9%). *Familismo,* or the importance of the family's decision over the individual's decision, is an established cultural value expressed in the literature.[13,14,43,44] Ayanian et al.[38] assessed problems associated with cancer care by measuring whether patients believed "family and friends were involved enough in care." However, to our knowledge, out study was the first to assess the importance of family in regards to healthcare decisions in Spanish-speaking patients with LEP.

In summary, while several exploratory research studies[17,18] and communication papers[13,15,16,41,45] have expressed the importance of the use of CAMs in Spanish speakers, study participants considered pharmacists' *knowledge of CAMs* (i.e., knowledge about folk healers, herbal teas and herbal treatments, and home remedies) as only "somewhat important." To our knowledge, no studies surveyed Spanish speakers' opinions regarding the importance of these three pharmacist characteristics. Therefore, these items were developed to address this gap in the literature. After removing participants who felt that pharmacists' understanding of their use of CAMs was not applicable to their satisfaction with cultural sensitivity, the results of the sub-analysis showed that the importance of the *knowledge of CAMs* subscale did not increase substantially. This is possibly due to participants' acculturation levels or their need to segregate western and traditional medicine,[18,19] where in many cases it may not be necessary for pharmacists to acknowledge or understand Spanish-speaking participants' use of CAMs in order to increase satisfaction. However, it is important to recognize that participants considered pharmacists' *cultural rapport* (i.e., speaks Spanish, is Latino, provides written information in Spanish, is respectful, is kind, is friendly, and understands the importance of family opinion in healthcare decisions) to be "important" to "very important" (mean=3.1-3.7, SD=0.6-1.1). Therefore, in order to better serve their Spanish-speaking patients, it is recommended that pharmacists realize the importance of maintaining cultural rapport.

MULTIPLE REGRESSION ANALYSES

Multiple regression analyses were used to address study objectives 3 and 4. The study results were compared to previous literature pertaining to Spanish speakers' preferences, satisfaction with healthcare, cultural normative values, and traditional folk practices and beliefs.

STUDY OBJECTIVE 3

To determine whether Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills is related to participant-rated pharmacists' Spanish proficiency while controlling for socio-demographic factors (i.e., age, gender, education, and insurance), clinical factors (i.e., number of medications, number of co-morbid disease states, and self-rated health status), communication factors (i.e., interpreter needed, interpreter offered, pharmacists' understanding, and participants' understanding), pharmacists' cultural factors, and the pharmacists' race/ethnicity.

Of the initial fifteen independent factors listed above, only age and cultural rapport were positively and significantly associated with Spanish speakers' satisfaction with their clinical pharmacists' communication skills at the 0.05 significance level. In order to improve parsimony, a reduced multiple linear regression model was run using independent factors with correlations at the 0.25 level with the dependent variable. Age was no longer significantly associated with satisfaction with communication skills;

however, the association between cultural rapport and Spanish-speaking patients' satisfaction with communication skills remained significant.

Studies focusing on Spanish speakers' satisfaction with their healthcare providers' communication have primarily assessed the following independent factors: healthcare providers' Spanish proficiency and race/ethnicity, socio-demographic factors, and certain clinical and communication factors (e.g., health status and interpreter needed). However, direct comparisons between the present study and studies in the literature are difficult to ascertain due to the differences in study methodologies (e.g., comparisons between English and Spanish speakers' satisfaction or comparisons of satisfaction with different interpreter services) and statistical analyses (e.g., logistic regression) that were utilized. No studies assessed satisfaction with pharmacists' communication. Most importantly, no study utilized the exact same communication construct as the present study, but all assessed one or more items within the communication construct.[12,20,24,28,33]

Fernandez et al.[24] assessed the association between physicians' communication and physicians' Spanish proficiency and reported that physician self-rated Spanish fluency was significantly and positively related to their ability to listen carefully to their Spanish-speaking patients. However, the present study showed no significance possibly due to fact that we utilized the pharmacists' Spanish proficiency scores rated by the patients instead of the pharmacists' self-rated scores. Although we found a significant correlation between patient-ratings and self-ratings, the correlation was at best moderate. Also, less than 8 percent of the participants in the study rated their pharmacists' Spanish as less than "good" versus 47 percent of patients in the comparator study, where more

heterogeneity in the comparator group may have led to significant differences. Fernandez et al.[24] also assessed the association between providers' communication and their race/ethnicity. Similar to the present study, race/ethnicity was not a significant predictor of patient-provider communication, and these results may be related to both studies' lack of power.

The socio-demographic factors (i.e., age, gender, education, and insurance) were assessed by several satisfaction studies with Spanish speakers, and the studies report conflicting results.[12,20,24,28,48] In the present study, none of the socio-demographic factors examined were significant predictors of satisfaction with communication. In the majority of studies, age was found to be a significant predictor of satisfaction with healthcare providers' communication, where older patients were more satisfied with their healthcare providers' ability to listen, answer questions, provide explanation about medications, provide sufficient discharge instructions, and provide explanations in general.[12,20,33] Only one study with Spanish speakers reported age as a non-significant predictor of satisfaction with communication.[28] On the other hand, gender was not a significant predictor of satisfaction with provider communication within the literature.[12,20,28,33] Only one study reported higher education (e.g., college education) as a significant predictor of low satisfaction with communication. However, this study assessed an assortment of non-English speakers, where 50 percent of the non-English-speaking patients were Latino.[33] Although the present study did not assess insurance as a predictor due to the lack heterogeneity (all participants utilized one or more forms of publicly-funded insurance), two out of three studies that assessed Spanish-speakers' satisfaction with

communication indicated patients without privately-funded or publicly-funded insurance were significantly more satisfied with their healthcare providers' ability to listen, answer questions, provide explanation about medications, provide sufficient discharge instructions, and provide explanations in general compared to those with these types of insurance plans.[12,20,33] The present study was very different from most studies in regards to methodologies and power. Studies that found significance either compared the satisfaction rates of Spanish versus English speakers or assessed satisfaction associated with Spanish interpretation methods, whereas the present study assessed Spanish speakers' satisfaction with clinical pharmacists' communication. A major limitation with the present study was the lack of power; however, the majority of studies in the literature did not express this limitation.[12,20,28,33]

Only one clinical factor, patient health status, was assessed in the literature regarding Spanish speakers' satisfaction with communication. While the present study did not find health status to be a significant predictor of satisfaction, the two studies that assessed patients' health status found it to be a significant predictor of satisfaction with provider communication. One study found that patients with a health status of "fair" or "poor" had significantly lower satisfaction with their providers' ability to listen carefully and "explain things well" compared to patients with a higher health status.[28] The other study found patients who rated their health status as "very good" or "excellent" had significantly higher overall satisfaction with their providers' ability to listen, answer questions, and provide explanations compared to those with a lower health status.[20] This conflicting result may be due to differences in study methodologies (e.g., the comparison

of English and Spanish speakers' satisfaction) and the statistical analyses performed (e.g., logistic regression and T-score normalization).[20,28]

Only one satisfaction study assessed the effect of the necessity of interpreter services during clinical visits with Spanish-speaking patients and found that needing an interpreter was related to significantly worse experiences regarding their providers' ability to listen carefully and explain things well.[28] In the present study, interpreter need, a communication factor, was found to be a non-significant predictor of satisfaction with clinical pharmacists' communication skills. The difference in results may be due to the fact that in the former study Spanish-speakers' satisfaction was compared to English-speakers' satisfaction, where English patients who could directly communicate with their provider were more likely to be satisfied with communication.[28]

In summary, much of the present study was exploratory in nature, where many predictors were based on literature regarding the preferences and opinions of Latinos and Spanish speakers, rather than predictors previously assessed by satisfaction studies with Spanish speakers. Therefore, comparisons with studies pertaining to Spanish-speaking patients' satisfaction with providers' communication and certain independent factors are unavailable at this time. Many of the remaining clinical and communication factors as well as the items in the cultural rapport and knowledge of CAMs subscales were supported by several studies and communication papers pertaining to Spanish speakers in the U.S.[1,13-15,22,24,37,46] Even though the present study suffered from low power, *cultural rapport*, a subscale that explored the importance of the Spanish language, pharmacists' ethnicity, written communication, and cultural normative values of Spanish

speakers, was the only significant predictor of satisfaction with communication. Therefore, pharmacists should consider whether their cultural rapport or lack thereof is helping or hindering their communication with Spanish-speaking patients. To our knowledge, the present study is the first to assess the importance of cultural rapport as a construct in relation to Spanish-speaking patients' satisfaction with clinical pharmacists' communication skills.

STUDY OBJECTIVE 4

To determine whether Spanish-speaking patients' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity is related to the participant-rated pharmacists' Spanish proficiency while controlling for socio-demographic factors (i.e., age, gender, education, and insurance), clinical factors (i.e., number of medications, number of co-morbid disease states, and self-rated health status), communication factors (i.e., interpreter needed, interpreter offered, pharmacists' understanding, and patients' understanding), pharmacists' cultural factors (cultural rapport and knowledge of CAMs), and the pharmacists' race/ethnicity.

Of the initial fifteen independent factors listed above, only cultural rapport was positively and significantly associated with Spanish speakers' satisfaction with their clinical pharmacists' demonstration of cultural sensitivity at the 0.05 significance level. In order to improve parsimony, a reduced multiple linear regression model was run using independent factors with correlations at the 0.25 level with the dependent variable.

Despite the increased parsimony, cultural rapport was the only significant predictor of satisfaction with cultural sensitivity.

Three studies focusing on Spanish speakers' satisfaction with their healthcare providers' cultural sensitivity or cultural competence have also assessed the following independent factors: healthcare providers' Spanish proficiency and race/ethnicity, socio-demographic factors, and one clinical factor, health status. However, direct comparisons between the present study and studies within the literature are difficult to ascertain due to differences in study methodologies (e.g., comparisons between English and Spanish speakers' satisfaction or comparisons of satisfaction with different interpreter services) and statistical analyses (e.g., logistic regression) that were utilized. However, no studies assessed satisfaction with pharmacists' cultural sensitivity. Most importantly, no study utilized the exact same cultural sensitivity construct as the present study, but all assessed one or more items within the cultural sensitivity construct. [24,33,39]

Fernandez et al.[24] assessed the relationship between physicians' understanding of health-related cultural beliefs and physicians' Spanish fluency and reported a moderate positive association between the two variables. The present study showed no significance between Spanish proficiency and cultural sensitivity possibly due to fact that we utilized the pharmacists' Spanish proficiency scores rated by the patients instead of the pharmacists' self-rated scores. Also, less than 8 percent of the participants in the present study rated their pharmacists' ability to speak Spanish as less than "good" versus 47 percent of patients in the comparator study, where more heterogeneity in the comparator group may have led to significant differences. Fernandez et al.[24] also

assessed the association between providers' understanding of health-related cultural beliefs and providers' race/ethnicity. Similar to the present study, race/ethnicity was not a significant predictor of satisfaction with cultural sensitivity, and these results may be related to both studies' lack of power.

The relationships between satisfaction with providers' cultural sensitivity and patients' socio-demographic factors (i.e., age, gender, education, and insurance) were assessed by two satisfaction studies with Spanish speakers[33,39] and one study assessing physician cultural competence.[24] In the present study, none of the socio-demographic factors were significant predictors of satisfaction with cultural sensitivity. Three studies with Spanish speakers' assessed the relationship between cultural sensitivity and age, and only one study found a significant relationship, where younger patients were significantly more dissatisfied with the courtesy and respect shown to them during an emergency department visit compared to older patients.[24,33,39] None of the studies that assessed providers' friendliness, respectfulness, concern, and health-related cultural beliefs were significantly predicted by gender, education, or insurance.[33,39] While the present study's power was affected by the small sample size, the findings were consistent with the body of literature, which suggests that socio-demographic variables are poor predictors of satisfaction with cultural sensitivity.

Only one clinical factor, patient health status, was assessed in the literature regarding Spanish speakers' satisfaction with providers' cultural sensitivity. The present study did not find health status to be a significant predictor of satisfaction, but one study which assessed satisfaction with providers' friendliness and respectfulness reported self-

reported health status as a significant predictor. Specifically, patients with a "poor" health status were significantly less satisfied with their providers' cultural sensitivity compared to patients with a "good" or "excellent" health status. Conflicting results may be due to differences in study methodologies (e.g., satisfaction with providers confounded in relation to interpreter usage) and study power.[39]

In summary, much of the present study was exploratory in nature, where many predictors were based on the literature regarding the preferences and opinions of Latinos and Spanish speakers, rather than predictors previously assessed by satisfaction studies with Spanish speakers. Therefore, comparisons with studies pertaining to Spanish-speaking patients' satisfaction with providers' cultural sensitivity and certain independent factors are not available at this time. Many of the remaining clinical and communication factors as well as the items in the cultural rapport and knowledge of CAMs subscales were supported by several of studies and communication papers pertaining to Spanish speakers in the U.S.[1,13-15,22,24,37,46] Even though the present study may have been affected by low power, *cultural rapport*, subscale that explored the importance of the Spanish language, pharmacists' ethnicity, written communication, and cultural normative values of Spanish speakers, was the only significant predictor of satisfaction with providers' cultural sensitivity. Therefore, pharmacists should consider whether their cultural rapport or lack thereof is helping or hindering their demonstration of cultural sensitivity toward Spanish-speaking patients. To our knowledge, the present study was the first to assess the importance of cultural rapport as a construct in relation to Spanish-speaking patients' satisfaction with clinical pharmacists' demonstration of cultural sensitivity.

LIMITATIONS

There are several limitations to the present study that must be addressed. First of all, the study was comprised of a convenience sample of both clinical pharmacists and Spanish-speaking patients and may not be representative of the population of clinical pharmacists and Spanish-speaking patients in the U.S. Clinical pharmacists working in federally qualified health centers may not be representative of all clinical pharmacists in the U.S. since these pharmacists primarily serve low income, uninsured patients with limited English proficiency and may hold themselves to a higher patient care standard. Specifically, the four pharmacists in the present study were dedicated to providing clinical care to these traditionally medically underserved CommUnityCare patients for three to seven years and had the self-motivation to seek Spanish language training in order to best serve their patients. Also, all Spanish-speaking participants were low-income patients who utilized CommUnityCare health centers in Austin, Texas and had access to publicly-funded health insurance. Spanish speakers living in other areas of Texas, such as El Paso, may greatly differ from patients in Austin due to the ubiquity of the spoken Spanish language and the dominant Latino cultural practices in that area, as well as the proximity of the city to the Texas-Mexico border. Therefore, the generalizability of the study's results is limited to clinical pharmacists and Spanish-speaking patients with similar characteristics in one geographic area.

Secondly, selection bias may have occurred during data collection. Even though they were instructed to ask every eligible Spanish-speaking patient to participate in the study, clinical pharmacists may have inadvertently introduced sampling bias, which is a

form of selection bias, if they primarily recruited the patients with which they had a good rapport. Also, some patients who were willing and eligible to participate were unable to complete the study surveys due to obstacles with transportation and the lack of interpreters available for survey completion. Some bias was likely introduced since patients who were able to complete the study on their own had literacy skills at a minimum of the eighth grade level (the reading level of the survey). Finally, the ethnicities of the patients were not assessed; therefore, differences in country of origin (e.g., Mexico versus Puerto Rico) may have led to systematic differences in satisfaction scores between patients.

Thirdly, social desirability bias may have occurred during data collection if patients answered survey items more favorably in order to please their clinical pharmacists. Although patients were told that the surveys would remain anonymous, patients may have reported higher satisfaction with their clinical pharmacists if they believed that lower satisfaction scores would lead to worse clinical care or retaliation in the future. In order to mitigate this limitation, patients were instructed to complete the survey anonymously without the help of their pharmacists and then place the completed survey in a sealed drop-box when finished. Also, many Spanish-speaking participants believed that *respeto,* or respect, was an important characteristic of their clinical pharmacist, and the literature has established that showing respect is reciprocal in nature for Spanish speakers.[13,14] Therefore, showing respect to an authority figure, such as a clinical pharmacist, may also have led to more social desirability bias if participants believed that lower satisfaction scores signified disrespect.[13]

Finally, the small sample size may have led to problems with validity and power. While the *pharmacists' cultural factors* construct was developed based on face validity, the use of principle components analysis (PCA) could not be utilized due to the study's small sample size. Therefore, the validity of the two subscales, *cultural rapport* and *knowledge of CAMs,* could not be established through factor analysis. Also, the small sample size may have led to the lack statistical power. It was estimated that *a priori* sample sizes of 170 and 122 participants were needed in order to obtain adequate power for the full and parsimonious models, respectively. However, the final sample size was only 93 participants. Thus, true and meaningful relationships between the dependent variables and the independent factors may possibly exist despite the lack of power to find them.

PRACTICAL IMPLICATIONS

Barriers with communication and cultural sensitivity have been well-documented in the literature for Spanish-speaking Latinos in the U.S.[1,13] Therefore, it is important for pharmacists to understand how to improve their communication skills and demonstration of cultural sensitivity in order to better serve their Spanish-speaking patients.

The present study has several findings that may support the improvement of care for Spanish speakers in relation to communication and cultural sensitivity. It is important to note that fourteen factors were not significant including pharmacists' Spanish proficiency, age, gender, education, insurance, number of medications, number of co-morbid disease states, self-rated health status, interpreter needed, interpreter offered,

pharmacists' understanding, patients' understanding, knowledge of CAMs, and the pharmacists' race/ethnicity. Despite limited power, it is imperative to stress that clinical pharmacists' *cultural rapport* remained a significant and positive predictor of both satisfaction with communication skills and satisfaction with cultural sensitivity. Therefore, it is important for pharmacists and pharmacy practice to embrace the concepts of cultural rapport important to Spanish-speakers, which include speaking Spanish, being Latino, providing written information in Spanish, being respectful, showing kindness and friendliness, and understanding the importance of family opinion in healthcare decisions.

Understanding and embracing these aspects of *cultural rapport* may start as early as prior to pharmacy school and may continue on after graduation and into pharmacy practice. Firstly, several studies have supported the notion that Spanish language courses should be offered as electives in pharmacy school curricula,[29,30,49,50] and one study even encouraged their pharmacy students to complete a major or minor in Spanish while in pharmacy school.[50] Other studies suggested pharmacies should offer continuing education courses for their pharmacists who serve Spanish speakers.[30,51] Secondly, the recruitment of more Latinos into pharmacy schools has been a proposed option,[22] and this may improve rapport between pharmacists and Spanish-speaking patients. However, it is important to acknowledge that the results of the present study and the results within the literature place more emphasis on speaking Spanish rather than being Latino.[46] Thirdly, the lack of provision of written information in Spanish such as pharmacy labels, prescription information, and patient leaflets has been an established problem throughout the literature.[29,30,47,51,52] Therefore, it is important for pharmacists to continue to explore

whether their patients need information written in Spanish and for pharmacies to provide adequate Spanish language resources for their pharmacists.[22] Lastly, the importance of showing respect, kindness, friendliness, and an understanding of the importance of family are cultural normative values held by many Spanish-speaking Latinos in the U.S.[13,14] Several pharmacy school-related initiatives involving cultural immersion trips to Mexico, introductory, intermediate, and advanced practice pharmacy experiences at clinics with primarily Spanish-speaking patients, the utilization of Spanish-speaking interpreters with patients, and the evaluation of CAMs and nontraditional practices in Latino communities have been used in pharmacy schools in order to increase cultural sensitivity and cultural competence with Spanish-speaking Latino patients in the U.S.[50,53] Furthermore, the importance of cultural sensitivity has been embraced by the governing bodies of pharmacy, and cultural competence preparation for pharmacy students was a requirement within the 2006 guidelines of the Accreditation Council for Pharmacy Education (ACPE).[54]

AREAS FOR FUTURE RESEARCH

Although many initiatives pertaining to language and cultural competency have been explored with pharmacy students, interventions with practicing pharmacists, and especially clinical pharmacists, are warranted.[50,53] Interventions may focus on increasing cultural competency or enhancing the language skills of practicing pharmacists.[49] Interventions must address educating pharmacists about the barriers to communication

and cultural sensitivity with Spanish speakers, as well as implementation of new strategies to overcome these barriers.

Strategies that focus on language skills may first begin with evaluating the language skills of each pharmacist and pharmacy staff member. Secondly, if deficiencies are found, opportunities for continuing education using established Spanish-language courses should be offered to pharmacists and pharmacy members who need improvement. Thirdly, protocols may also be put in place in order to help English-speaking pharmacists develop their basic communication skills with their Spanish-speaking patients. Finally, periodic and increasingly difficult step-wise evaluations by both fluent Spanish-speaking pharmacists and Spanish-speaking patients may allow for improvement in communication skills overtime.

Strategies that focus on developing cultural sensitivity and cultural rapport may first begin with basic education of these topics to all pharmacists and staff members using courses endorsed by professional pharmacy and medical associations. Secondly, roundtable discussions with pharmacists and healthcare providers who understand the Latino culture may help provide personal insight and key tips for their fellow colleagues. Finally, full immersion within a Latino community in the U.S. or in a country outside of the U.S. may provide a deeper understanding of the customs, culture, and traditional health practices of Spanish-speaking Latino patients. The values of *respeto, personalismo, simpatía,* and *familismo* may become more apparent, especially if this experience was supplemented with education and guidance from experts within the field.

The present study found that a focus on pharmacists' cultural rapport was very important in determining satisfaction with clinical pharmacists. Communicating in Spanish, being Latino, and abiding by cultural normative values are very important to Spanish-speaking patients and various types of interventions involving these aspects should be further explored.

CONCLUSIONS

This study showed that cultural factors of pharmacists, specifically their cultural rapport, were significantly associated with Spanish-speaking patients' satisfaction with their clinical pharmacists' communication skills and their demonstration of cultural sensitivity. These findings indicate and further support the importance of practicing pharmacists' Spanish-speaking ability, race/ethnicity, provision of written information in Spanish, respect, kindness, friendliness, and understanding of the importance of family in healthcare decisions for Spanish speakers in the U.S.

These results serve as a starting point for future research with Spanish-speaking patients' satisfaction with communication and cultural sensitivity. Educational initiatives and exploratory interventions are needed to improve the care of Spanish-speaking patients with limited English proficiency and to further the role of the clinical pharmacist.

CHAPTER 4 BIBLIOGRAPHY

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APPENDIX A: CLINICAL PHARMACISTS' SCRIPT

Pharmacists' Script to Patients:

"I would like to see if you are eligible to take a clinic survey. First, can you tell me if you prefer to speak in Spanish or in English with me?" (*Note: If the patient says "Spanish" please continue. If they say "English," they are not eligible.)* "And secondly, how would you rate your ability to speak English?" Please choose from the following: you cannot speak English, poor (know a few words in English), fair (know a few phrases in English), good (can hold a small conversation in English), or excellent (fluent in English)." (*Note: Let the patient choose from the following responses only. Patients who answer the second question as "cannot speak English," "poor," or "fair" are be eligible for the study as long as all other inclusion criteria are met.)*

1. If the patient is NOT eligible, please say the following: "Thank you for answering the question(s). Unfortunately, you are not eligible to take the survey at this time."

2. If the patient is eligible, please say the following: "Thank you for answering the questions. Please help us improve our services by completing our short survey on patient satisfaction. We will use your feedback to improve our services for Spanish-speaking patients. It is anticipated that it will take you approximately 15 minutes to complete this survey. Your responses to all questions will remain anonymous and kept in a confidential and secure manner. No personal identifiers will be recorded, and this survey cannot be traced back to you. All information is used for evaluation purposes only, and we will not share the data with anyone outside our research team. If you agree to take this survey, please complete it in the clinic, and take it down to your patient assistance program representative. Your representative may also help you read the survey if necessary. As a token of appreciation, you will receive a $5 Walmart gift card upon completion of your survey. Once you have filled out your survey, please alert your patient assistance program representative, and place your folded survey in the sealed box.

APPENDIX B: CLINICAL PHARMACISTS' SCRIPT IN SPANISH

Pharmacists' Script to Patients in Spanish:

"Quisiera saber si usted es elegible para participar en un estudio de investigación. En primer lugar, quiero saber si prefiere hablar en español o en inglés." (*Note: If the patient says: "en español" please continue. If they say: "en inglés" they are not eligible.)* "También me gustaría saber qué tan bien habla usted inglés. Por favor escoja una de las siguientes opciones: No hablo inglés; hablo algunas palabras en Inglés; hablo algunas frases en Inglés; que pueda tener una conversación corta en Inglés, mi inglés es muy bueno." (*Note: Let the patient choose from the following responses only. Patients who answer the second question as "*No hablo inglés", "Hablo algunas palabras en Inglés" o "Hablo algunas frases en Inglés" *are eligible for the study as long as all other inclusion criteria are met.)*

1. If the patient is NOT eligible, please say the following: "Gracias por contestar las preguntas. Desafortunadamente usted no es elegible para tomar esta encuesta por el momento."

2. If the patient is eligible, please say the following: "Gracias por contestar las preguntas. Por favor ayúdenos a mejorar nuestros servicios, contestando el cuestionario de la encuesta de satisfacción del paciente. Usaremos sus respuestas para mejorar nuestros servicios para los pacientes que hablan español. Creemos que le tomará unos 15 minutos aproximadamente llenar el cuestionario de la encuesta. Todas sus respuestas se mantendrán anónimas y se guardarán bajo estrictas medidas de seguridad. No se le preguntarán en el cuestionario aquellos datos que lo puedan identificar y las respuestas que usted ponga en esta encuesta no se podrán usar para localizar su información personal o a usted. Toda la información que se obtenga se usará con fines de evaluación exclusivamente. Y, todos los datos que usted escriba en la encuesta no se compartirán con ninguna persona o institución fuera del equipo de investigadores participantes. Si usted acepta participar en esta encuesta, favor de llenar el cuestionario completo dentro de la clínica. Al terminar, entrégueselo al representante del programa de asistencia al paciente. Si necesita ayuda para leer el cuestionario, su representante le puede ayudar. Como muestra de agradecimiento, una vez que entregue su cuestionario contestado, usted recibirá una tarjeta de regalo de la tienda departamental Wal-Mart con valor de $5.00 dólares. Cuando haya terminado de llenar el cuestionario de la encuesta, por favor avísele a su representante del programa de asistencia del paciente, luego dóblelo y deposítelo en la caja sellada."

APPENDIX C: INSTITUTIONAL REVIEW BOARD APPROVAL

OFFICE OF RESEARCH SUPPORT

THE UNIVERSITY OF TEXAS AT AUSTIN

P.O. Box 7426, Austin, Texas 78713 (512) 471-8871 -FAX (512 471-8873)
North Office Building A, Suite 5.200 (Mail code A3200)

FWA # 00002030

Date: **08/12/11**

PI(s): **Jamie C Barner** Department & Mail Code: **Pharmacy**
Carolyn M Brown **PHAR-PHARMACY ADMIN**
Dawn N Kim

Title: **Spanish-Speaking Patients' Satisfaction with Clinical Pharmacists' Services**

IRB EXEMPT DETERMINATION: IRB Protocol # **2011-03-0066**

Dear: **Jamie C Barner** **Carolyn M Brown** **Dawn N Kim**

Recognition of Exempt status based on 45CFR 46.101(b).

Qualifying Period: 08/12/2011 - 08/11/2014 *Expires 12 a.m. [midnight] of this date.*
A continuing review report must be submitted in three years if the research is ongoing.

(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless:
(i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

Responsibilities of the Principal Investigator:

Research that is determined to be Exempt from Institutional Review Board (IRB) review is not exempt from ensuring protection of human subjects. The following criteria to protect human subjects must be met. The Principal Investigator (PI):

1. Assures that all investigators and co-principal investigators are trained in the ethical principles, relevant Federal Regulations and institutional policies governing human subject research.
2. Will provide subjects with pertinent information (e.g. risks and benefits, contact information for investigators and IRB Chair) and assures that human subjects will voluntarily consent to participate in the research when appropriate (e.g. surveys, interviews).
3. Assures the subjects will be selected equitably, so that the risks and benefits of the research are justly distributed.
4. Assures that the IRB will be immediately informed of any information or unanticipated problems that may increase the risk to the subjects and cause the category of review to be reclassified to Expedited or Full Board Review.

5. Assures that the IRB will be immediately informed of any complaints from subjects regarding their risks and benefits.

6. Assures that confidentiality and privacy of the subjects and the research data will be maintained appropriately to ensure minimal risk to subjects.

7. Will report, by amendment, any changes in the research study.

These criteria are specified in the PI Assurance Statement that must be signed before determination of Exempt status will be granted. The PI's signature acknowledges that he/she understands and accepts these conditions. Refer to the Office of Research Support (ORS) website, www.utexas.edu/irb for specific information on training, voluntary informed consent, privacy, and how to notify the IRB of unanticipated problems.

1. **Closure:** Upon completion of the research study, a Closure Report must be submitted to the ORS.

2. **Unanticipated Problems:** Any unanticipated problems or complaints must be reported to the IRB/ORS immediately. For a description of unanticipated problems, please refer to the ORS webpage: http://www.utexas.edu/research/rsc/humansubjects/policies/section7.html#7.3

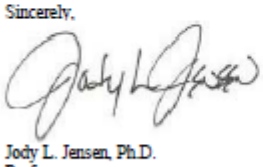
3. **Informed Consent:** The informed consent procedures laid out within your research proposal must be followed.

4. **Continuing Review:** If the study will continue beyond the three year qualifying period, a continuing review report must be filed.

5. **Amendments:** Amendments do not need to be filed with the ORS if the amendments do not change the risk level of the study (for example: increasing sample size, adding or removing co-Principal Investigators, adding or removing research sites, or minor modifications to the research protocol). Changes altering the level of risk to subjects must be requested by submitting an amendment application and revised proposal to the ORS prior to those changes being implemented. For a description of the types of modifications that require an amendment application, refer to the ORS webpage: http://www.utexas.edu/research/rsc/humansubjects/policies/section6.html#635b , or call 471-8871.

If you have any questions call or contact the ORS (Mail Code A3200) or via e-mail at orsc@uts.cc.utexas.edu.

Sincerely,



Jody L. Jensen, Ph.D.
Professor
Chair, Institutional Review Board

Title of Study: Patient Satisfaction with Pharmacy Services

Conducted By: **José O. Rivera, Jamie C. Barner, Carolyn M. Brown, and Dawn Kim**
Jrivera@utep.edu, jbarner@mail.utexas.edu, cmbrown@mail.utexas.edu, dawnkim@mail.utexas.edu
Of The University of Texas at Austin: Pharmacy Administration, Room 2.210
Telephone: 915-747-8519 or 512-784-2474

You are being asked to participate in a research study entitled, "Patient Satisfaction with Pharmacy Services." This form provides you with information about the study. Individuals involved with this research will also describe this study to you and answer all of your questions. Your participation is entirely voluntary. You can refuse or stop participation at any time and this will not impact current or future relationships with the University of Texas at Austin or El Paso, <**insert clinic name**>, or with another agency affiliated with this study now or in the future. To do so simply tell the researcher you wish to stop participation. The researcher will provide you with a copy of this form for your records.

The purpose of this study is to understand more about your communication and satisfaction with your clinical pharmacist. There will be approximately 300 participants in the study.

If you agree to be in this study, we will ask you to do the following things:

- Answer questions on an anonymous survey while at the clinic.

Total estimated time to participate in the study is 15 minutes.

Risks of being in the study are minimal to study participants. All responses are anonymous, and we will not ask for identifiable information. Therefore, the survey cannot be linked to you. If you wish to discuss the information above or any other risks you may experience, you may ask questions now or call the Principal Investigator listed on the front page of this form.

Benefits of being in the study may help increase the understanding of your communication and satisfaction with your clinical pharmacists. While there is no immediate direct benefit to patients enrolled in this study, analysis may benefit current and future patients. Also, this study may identify opportunities for the clinic to improve services.

Compensation:

- Upon completion of the survey, you will be provided with a $5 Walmart giftcard as a token of appreciation.

Confidentiality and Privacy Protections:

- The records of this study will be stored securely and kept confidential.
- The data from this anonymous survey contains no identifying information and cannot be linked back to any study participant.

Contacts and Questions:

If you have any questions about the study please ask now. If you have questions later, want additional information, or wish to withdraw your participation call the researchers conducting the study. Their names, phone numbers, and e-mail addresses are at the top of this page.

If you would like to obtain information about the research study, have questions, concerns, complaints or wish to discuss problems about a research study with someone unaffiliated with the study, please contact the IRB Office at (512) 471-8871 or Jody Jensen, Ph.D., Chair, The University of Texas at Austin Institutional Review Board for the Protection of Human Subjects at (512) 232-2685. Anonymity, if desired, will be protected to the extent possible. As an alternative method of contact, an email may be sent to orsc@uts.cc.utexas.edu or a letter sent to IRB Administrator, P.O. Box 7426, Mail Code A 3200, Austin, TX 78713.

You will be given a copy of this information to keep for your records.

Título del estudio: Satisfacción de pacientes con los servicios de farmacia clínica
Conducida por: **José O. Rivera, Jamie C. Barner, Carolyn M. Brown, and Dawn Kim**
Jrivera@utep.edu, jbarner@mail.utexas.edu, cmbrown@mail.utexas.edu, dawnkim@mail.utexas.edu
De La Universidad de Texas en Austin y El Paso: Programa Cooperativo de Farmacia, Suite 301
Teléfono: 915-747-8519 o 512-784-2474

Le pedimos su participación en un estudio de investigación titulado "Satisfacción de pacientes con los servicios de farmacia clínica." Este documento le provee con la información del estudio. El investigador principal (el encargado de este estudio) también se lo describirá y podrá contestar las preguntas que tenga. Su participación es enteramente voluntaria. Puede dejar de participar en este estudio en cualquier momento sin que se afecte sus relaciones con La Universidad de Texas en El Paso y Austin, <**insert clinic name**>, ni con otra agencia afiliada con este estudio, ni ahora ni en el futuro. Simplemente dígale al investigador que quiere dejar de participar. Dicha persona le entregara una copia de este documento para sus propios efectos.

El propósito de este estudio es entender mejor la communicación y satisfacción con su farmacéutico clínico. Habrá aproximadamente 300 participantes en el estudio.

Si usted esta de acuerdo en participar en este estudio, le pedimos lo siguiente:
- Contestar unas preguntas en un cuestionario anónimo mientras está en la clínica.

La duración de su participación en el estudio será como unos 15 minutos.

Los riesgos de la participación:
Los riesgos de participar en este estudio son mínimos. Todas las respuestas son anónimas y no vamos a preguntar información que lo (la) identifique. Por esta razón, el cuestionario no puede ser asociado con usted. Si usted desea discutir la información aquí o los riegos que puede tener, puede preguntar ahora o llamar al investigador principal que esta al principio de esta hoja de papel.

Los beneficios de la participación:
- Los beneficios de participar en este estudio incluyen que nos puede ayudar a entender la communicación y satisfacción con su farmacéutico clínico. Aunque no hay un beneficio directo para pacientes en este estudio, nuestro análisis puede ayudarle a usted y a otros pacientes en el futuro. También este estudio puede identificar oportunidades para mejorar servicios en la clínica.

Compensación:
- Cuando usted complete el cuestionario recibirá una tarjeta de regalo de Walmart de $5.00.

Protección de su Privacidad y Confidencialidad:
- Todos los records de este estudio se van a guardar en un sitio seguro y se van a mantener confidencial.
- Los datos asociados con este cuestionario anonimono contendrán información que puedan asociarle con este estudio.

Preguntas y Contactos:
Si usted tiene alguna pregunta acerca de este estudio, por favor hágala ahora mismo. Si tiene preguntas en el futuro, quiere más información, o quiere retirar su consentimiento y dejar de participar en este estudio, por favor llame al investigador principal. El nombre, teléfono, y el correo electrónico del investigador se encuentra en la primera página.

Si también quiere informarse acerca de este estudio, si tiene preguntas, dudas, quejas, o quiere hablar de problemas que tenga con otra persona ajena al estudio, por favor llame a la Oficina de la Junta de Revisión Institucional (IRB Office) al 915-747-8841 a Athena Fester (UTEP) o al 512-471-8871 o a Jody L. Jensen, Ph.D., Directora, Institutional Review Board for the Protection of Human Subjects, la Universidad de Texas en Austin, al 512-232-2685. Si desea ser anónimo, se respetara su deseo a la medida de lo posible. Una alternativa que le corresponde es dirigirse a orsc@uts.cc.utexas.edu o al IRB Administrator, P.O. Box 7426, Mail Code A 3200, Austin, TX 78713.

Se le entregara copia de esta información para conservar entre sus documentos.

APPENDIX D: PERMISSION FOR COMMUNITYCARE CLINIC ACCESS

CommUnityCare

Health Center Locations

A.K. Block
928 Blackson Avenue
512-978-9740

ARCH Homeless Clinic
500 E. 7th Street
(At the ARCH)
512-978-9920

David Powell (HIV/AIDS)
4614 N. IH-35
512-978-9100

Del Valle
3518 FM 973
512-978-9750

East Austin
211 Comal Street
512-978-9200

Manor
600 W. Carrie Manor
512-978-9780

Montopolis
1200-B Montopolis
512-978-9800

Northeast Austin
7112 Ed Bluestein
512-978-9300
Dental: 512-978-9880

Oak Hill
8656-A Hwy 71
512-978-9820

Pflugerville
1588 Foothill Farm Loop
512-978-9840

RBJ Dental Clinic
15 Waller Street
512-978-9895

Red River
1215 Red River
Inside the Health South bldg
512-978-9940

Rosewood Zaragosa
2802 Webbervile Road
512-978-9400

Rundberg
825 E. Rundberg
512-978-9600

South Austin
2529 S. First Street
512-978-9500
Dental: 512-978-9865

William Cannon
6801 IH-35
512-978-9960

Jody Jensen, Ph.D.
Chair Institutional Review Board
The University of Texas at Austin
P.O. Box 7426
Austin, TX 78713

Dear Dr. Jensen

I am writing the letter in support of Jamie C. Barner, Ph.D., College of Pharmacy Associate Professor, Carolyn M. Brown, Ph.D., College of Pharmacy Professor, and Dawn Kim, Pharm.D., graduate student, conducting a research study entitled, "Spanish-Speaking Patients' Satisfaction with Clinical Pharmacists' Services" at CommUnityCare in Travis County, Texas.

The Central Texas Community Health Centers, d/b/a CommUnityCare, a 501(c)3 non-profit organization, is a co-holder of the Federally Qualified Health Center (FQHC) designation with the Travis County Healthcare District. CommUnityCare has an Educational Affiliation Agreement with the University of Texas College of Pharmacy, to provide pharmacy students clinical and observational experience as part of their educational instruction.

Our clinics utilize clinical pharmacists to provide medication therapy management for patients and a significant portion of our patients speak primarily Spanish. The objective of this study project is to evaluate Spanish-speaking patients' satisfaction with their pharmacists' communication skills and their pharmacists' demonstration of cultural sensitivity. Approximately, 75 patients from the CommUnityCare clinics will be utilized in this study.

This project is important to help us identify and document whether pharmacy services are satisfactory to Spanish-speaking patients. At the conclusion of the study, a report of the findings will be provided, to be distributed as aggregate data and consistent with law and regulation related to Health Insurance Portability and Accountability Act (HIPAA). Drs. Barner, Brown, and Kim will be required to comply and participate in CommUnityCare's Performance Improvement and Compliance Plan requirements and activities and be bound by the HIPAA Business Associate Agreement between CommUnityCare and the University of Texas at Austin College of Pharmacy.

I, Bob Brown, give permission for Jamie C. Barner, Ph.D., Carolyn M. Brown, Ph.D., and Dawn Kim, Pharm.D. to conduct the study entitled, "Spanish-speaking Patients' Satisfaction with Clinical Pharmacists' Services" at CommUnityCare clinics.

Sincerely,

Bob Brown

Bob Brown, MS, R.Ph.
Pharmacy Director
CommUnityCare
RBJ Health Center RM 512
15 Waller St.
Austin, TX 78702

APPENDIX E: PARTICIPANTS' COVER LETTER

COMMUNITYCARE PARTICIPANTS' COVER LETTER

Title: Patient Satisfaction with Pharmacy Services
IRB PROTOCOL # 2011-03-27
Conducted By: Jamie C. Barner, Carolyn M. Brown, and Dawn Kim
jbarner@mail.utexas.edu, cmbrown@mail.utexas.edu, dawnkim@mail.utexas.edu
Of The University of Texas at Austin: Pharmacy Administration 2.210
Telephone: (512) 784-2474

You are being asked to participate in a research study entitled, "Patient Satisfaction with Pharmacy Services." This form provides you with information about the study. Individuals involved with this research will also describe this study to you and answer all of your questions. Your participation is entirely voluntary. You can refuse or stop participation at any time and this will not impact current or future relationships with UT Austin or CommUnityCare. To do so simply tell the researcher you wish to stop participation. The researcher will provide you with a copy of this form for your records.

The purpose of this study is to understand more about your communication and satisfaction with your clinical pharmacist.

If you agree to be in this study, we will ask you to do the following things:

- Answer questions on an anonymous survey while at the clinic.

Total estimated time to participate in the study is 15 minutes.

Risks of being in the study are minimal to study participants. All responses are anonymous, and we will not ask for identifiable information. Therefore, the survey cannot be linked to you. If you wish to discuss the information above or any other risks you may experience, you may ask questions now or call the Principal Investigator listed on the front page of this form.

Benefits of being in the study may help increase the understanding of your communication and satisfaction with your clinical pharmacists. While there is no immediate direct benefit to patients enrolled in this study, analysis may benefit current and future patients. Also, this study may identify opportunities for the clinic to improve services.

Compensation:

- Upon completion of the survey, you will be provided with a $5 Walmart giftcard as a token of appreciation.

Confidentiality and Privacy Protections:

- The records of this study will be stored securely and kept confidential.
- The data from this anonymous survey contains no identifying information and cannot be linked back to any study participant.

Contacts and Questions:

If you have any questions about the study please ask now. If you have questions later, want additional information, or wish to withdraw your participation call the researchers conducting the study. Their names, phone numbers, and e-mail addresses are at the top of this page.

If you would like to obtain information about the research study, have questions, concerns, complaints or wish to discuss problems about a research study with someone unaffiliated with the study, please contact the IRB Office at (512) 471-8871 or Jody Jensen, Ph.D., Chair, The University of Texas at Austin Institutional Review Board for the Protection of Human Subjects at (512) 232-2685. Anonymity, if desired, will be protected to the extent possible. As an alternative method of contact, an email may be sent to orsc@uts.cc.utexas.edu or a letter sent to IRB Administrator, P.O. Box 7426, Mail Code A 3200, Austin, TX 78713.

You will be given a copy of this information to keep for your records.

APPENDIX F: PARTICIPANTS' COVER LETTER IN SPANISH

COMMUNITYCARE COVER LETTER IN SPANISH

Título del estudio: Satisfacción de pacientes con los servicios de farmacia clínica
IRB PROTOCOL # **2011-03-27**
Conducida por**: José O. Rivera, Jamie C. Barner, Carolyn M. Brown, and Dawn Kim**
Jrivera@utep.edu, jbarner@mail.utexas.edu, cmbrown@mail.utexas.edu, dawnkim@mail.utexas.edu
De La Universidad de Texas en Austin y El Paso: Programa Cooperativo de Farmacia, Suite 301
Teléfono: 915-747-8519

Le pedimos su participación en un estudio de investigación titulado "Satisfacción de pacientes con los servicios de farmacia clínica." Este documento le provee con la información del estudio. El investigador principal (el encargado de este estudio) también se lo describirá y podrá contestar las preguntas que tenga. Su participación es enteramente voluntaria. Puede dejar de participar en este estudio en cualquier momento sin que se afecte sus relaciones con La Universidad de Texas en Austin, CommUnityCare, ni con otra agencia afiliada con este estudio, ni ahora ni en el futuro. Simplemente dígale al investigador que quiere dejar de participar. Dicha persona le entregara una copia de este documento para sus propios efectos.

El propósito de este estudio es entender mejor la comunicación y satisfacción con su farmacéutico clínico.

Si usted esta de acuerdo en participar en este estudio, le pedimos lo siguiente:

- Contestar unas preguntas en un cuestionario anónimo mientras está en la clínica.

La duración de su participación en el estudio será como unos 15 minutos.

Los riesgos de la participación:

Los riesgos de participar en este estudio son mínimos. Todas las respuestas son anónimas y no vamos a preguntar información que lo (la) identifique. Por esta razón, el cuestionario no puede ser asociado con usted. Si usted desea discutir la información aquí o los riegos que puede tener, puede preguntar ahora o llamar al investigador principal que esta al principio de esta hoja de papel.

Los beneficios de la participación:

- Los beneficios de participar en este estudio incluyen que nos puede ayudar a entender la comunicación y satisfacción con su farmacéutico clínico. Aunque no hay un beneficio directo para pacientes en este estudio, nuestro análisis puede ayudarle a usted y a otros pacientes en el futuro. También este estudio puede identificar oportunidades para mejorar servicios en la clínica.

Compensación:

- Cuando usted complete el cuestionario recibirá una tarjeta de regalo de Walmart de $5.00.

Protección de su Privacidad y Confidencialidad:

- Todos los records de este estudio se van a guardar en un sitio seguro y se van a mantener confidencial.
- Los datos asociados con este cuestionario anonimono contendrán información que puedan asociarle con este estudio.

Preguntas y Contactos:

Si usted tiene alguna pregunta acerca de este estudio, por favor hágala ahora mismo. Si tiene preguntas en el futuro, quiere más información, o quiere retirar su consentimiento y dejar de participar en este estudio, por favor llame al investigador principal. El nombre, teléfono, y el correo electrónico del investigador se encuentra en la primera página.

Si también quiere informarse acerca de este estudio, si tiene preguntas, dudas, quejas, o quiere hablar de problemas que tenga con otra persona ajena al estudio, por favor llame a la Oficina de la Junta de Revisión Institucional (IRB Office) al 915-747-8841 a Athena Fester (UTEP) o al 512-471-8871 o a Jody L. Jensen, Ph.D., Directora, Institutional Review Board for the Protection of Human Subjects, la Universidad de Texas en Austin, al 512-232-2685. Si desea ser anónimo, se respetara su deseo a la medida de lo posible. Una alternativa que le corresponde es dirigirse a orsc@uts.cc.utexas.edu o al IRB Administrator, P.O. Box 7426, Mail Code A 3200, Austin, TX 78713.

Se le entregara copia de esta información para conservar entre sus documentos.

APPENDIX G: CLINICAL PHARMACIST'S COVER LETTER

CLINICAL PHARMACIST'S COVER LETTER

Title: Patient Satisfaction with Pharmacy Services
IRB PROTOCOL # **2011-03-27**
Conducted By: Jamie C. Barner, Carolyn M. Brown, and Dawn Kim
jbarner@mail.utexas.edu, cmbrown@mail.utexas.edu, dawnkim@mail.utexas.edu
Of The University of Texas at Austin: Pharmacy Administration 2.210
Telephone: (512) 784-2474

You are being asked to participate in a research study entitled, "Patient Satisfaction with Pharmacy Services." This form provides you with information about the study. The person in charge of this research will also describe this study to you and answer all of your questions. Your participation is entirely voluntary. You can refuse or stop participation at any time and this will not impact current or future relationships with UT Austin or participating sites. To do so simply tell the researcher you wish to stop participation. The researcher will provide you with a copy of this consent for your records.

The purpose of this study is to understand more about your communication with your patients.

If you agree to be in this study, we will ask you to do the following things:

- Answer a two-item survey while at the clinic.
- Return the survey by placing it in a designated sealed drop-box.

Total estimated time to participate in the study is 2 minutes.

Risks of being in the study are minimal to study participants. All responses are kept confidential. If you wish to discuss the information above or any other risks you may experience, you may ask questions now or call the Principal Investigator listed on the front page of this form.

Benefits of being in the study may help increase the understanding of patients' satisfaction with the communication skills and cultural sensitivity of clinical pharmacists. While there is no immediate direct benefit to pharmacists enrolled in this study, analysis of patient satisfaction may benefit current and future clinical pharmacists. Also, this study may identify opportunities for improvement.

Confidentiality and Privacy Protections:

- The records of this study will be stored securely and kept confidential.

Contacts and Questions:
If you have any questions about the study please ask now. If you have questions later, want additional information, or wish to withdraw your participation call the researchers conducting the study. Their names, phone numbers, and e-mail addresses are at the top of this page.

If you would like to obtain information about the research study, have questions, concerns, complaints or wish to discuss problems about a research study with someone unaffiliated with the study, please contact the IRB Office at (512) 471-8871 or Jody Jensen, Ph.D., Chair, The University of Texas at Austin Institutional Review Board for the Protection of Human Subjects at (512) 232-2685. Anonymity, if desired, will be protected to the extent possible. As an alternative method of contact, an email may be sent to orsc@uts.cc.utexas.edu or a letter sent to IRB Administrator, P.O. Box 7426, Mail Code A 3200, Austin, TX 78713.

You will be given a copy of this information to keep for your records.

APPENDIX H: SURVEY FOR PARTICIPANTS

SURVEY OF PATIENT SATISFACTION WITH PHARMACY SERVICES

Thank you for your participation in this study. Please be assured that your responses will remain anonymous and will only be available to the researchers of this study. After you have filled out this survey, please fold and place it in the sealed drop-box.

Thank you!

Please continue to the next page →

Section 1: These questions describe your clinical pharmacist's ability to provide services. Please circle one number that best describes your response to each question.

How satisfied are you with your clinical pharmacist's:	Extremely Dissatisfied	Dissatisfied	Satisfied	Extremely Satisfied
a. Ability to listen to your health concerns?	1	2	3	4
b. Ability to answer all of your questions?	1	2	3	4
c. Ability to provide medication counseling?	1	2	3	4
d. Ability to provide explanation about your disease state(s)?	1	2	3	4
e. Ability to provide follow-up instructions?	1	2	3	4
f. Ability to fully understand what you are trying to say?	1	2	3	4
g. Demonstration of respect?	1	2	3	4
h. Demonstration of kindness?	1	2	3	4
i. Demonstration of friendliness?	1	2	3	4
j. Overall understanding of your culture?	1	2	3	4

Section 2: These questions describe your satisfaction with your clinical pharmacist. Please circle one number that best describes your response to each question.

How satisfied are you with your clinical pharmacist's:	Extremely Dissatisfied	Dissatisfied	Satisfied	Extremely Satisfied	Does Not Apply
a. Understanding of the importance of family opinion in healthcare decisions?	1	2	3	4	☐
b. Understanding of your use of folk healers or someone similar to a folk healer?	1	2	3	4	☐
c. Understanding of your use of herbal teas and herbal treatments?	1	2	3	4	☐
d. Understanding of your use of home remedies?	1	2	3	4	☐
e. Understanding of your use of prayer as healing?	1	2	3	4	☐

Section 3: These questions ask about the characteristics of a clinical pharmacist that are important to you. Please circle one number that best describes your response to each question.

How important to you are the following characteristics of your clinical pharmacist?	Not at all Important	Somewhat Important	Important	Very Important
a. The pharmacist speaks Spanish.	1	2	3	4
b. The pharmacist is Hispanic or Latino.	1	2	3	4
c. The pharmacist is respectful.	1	2	3	4
d. The pharmacist is friendly.	1	2	3	4
e. The pharmacist is kind.	1	2	3	4
f. The pharmacist understands the importance of family opinion in healthcare decisions.	1	2	3	4
g. The pharmacist is knowledgeable about folk healers or someone similar to a folk healer.	1	2	3	4
h. The pharmacist is knowledgeable about herbal teas and herbal treatments.	1	2	3	4
i. The pharmacist is knowledgeable about home remedies.	1	2	3	4
j. The pharmacist provides written information in Spanish.	1	2	3	4

Section 4: These questions pertain to the communication between you and your clinical pharmacist. Place an 'X' next to your response.

1. How would you rate your clinical pharmacist's ability to speak Spanish?

_____ Cannot speak English
_____ Poor (knows a few words in Spanish)
_____ Fair (knows a few phrases in Spanish)
_____ Good (can hold a small conversation in Spanish)
_____ Excellent (fluent in Spanish)

2. Did you need a Spanish-speaking interpreter during any visits with the clinical pharmacist?

_____ No, my clinical pharmacist speaks Spanish.
_____ No, my family member or friend interpreted for me.
_____ No, a clinic staff member interpreted for me.
_____ Yes

3. If you needed a Spanish-speaking interpreter, were you offered one?

_____ No
_____ Yes

4. Who would you most prefer to help interpret information?

_____ A professional interpreter
_____ A clinical pharmacist who speaks Spanish
_____ A clinic staff member who speaks Spanish
_____ A family member or friend
_____ A telephone interpreter
_____ Other, (specify):_____

5. How often **does your clinical pharmacist fully understand** what you are trying to say about your medication and health condition?

_____ Never
_____ Sometimes
_____ Often
_____ Always

6. How often **do you fully understand** what your clinical pharmacist is trying to say about your medication and health condition?

_____ Never
_____ Sometimes
_____ Often
_____ Always

Please continue to the next page →

Section 5: Please answer a few questions about yourself. Provide one response per question.

7. What year were you born? 19_____

8. What is your gender?

_____ Male

_____ Female

9. Which of the following best describes your **highest level** of education?

_____ 8th grade or less

_____ Some high school

_____ A high school degree or GED

_____ Some college

_____ College degree

10. What type of health insurance do you have?

_____ Private insurance

_____ Medicaid

_____ CHIP (Children's Health Insurance Plan)

_____ Medicare

_____ No insurance/Self-pay

_____ Not sure

11. How many medications do you take? Please include prescription, non-prescription, and herbal medications.

_____ 1-2

_____ 3-4

_____ 5-6

_____ 7-8

_____ 9-10

_____ More than 10

12. Do you have any of the following medical conditions? (Please check all that apply.)

		Yes	No
a.	Diabetes/High Blood Sugar	☐	☐
b.	Hypertension/High Blood Pressure	☐	☐
c.	Depression	☐	☐
d.	High Cholesterol	☐	☐
e.	Other illness, (specify):	☐	☐

13. How would you rate your overall health?

_____ Poor

_____ Fair

_____ Good

_____ Excellent

14. Please share any additional comments or suggestions that you may have.

_____

_____

_____

_____

_____

_____

_____

Thank you for completing this survey. Your information will be used to help improve clinic pharmacists' services for Spanish-speaking patients!

Please fold the survey and place it in the sealed drop-box.

APPENDIX I: SURVEY FOR PARTICIPANTS IN SPANISH

ENCUESTA SOBRE EL GRADO DE SATISFACCIÓN DE LOS PACIENTES CON LOS SERVICIOS DE FARMACIA

Gracias por su participación en este estudio. Le aseguramos que sus respuestas serán totalmente anónimas y estarán disponibles sólo para los investigadores de este estudio. Después de que haya llenado esta encuesta, por favor dóblela y póngala en la caja receptora sellada.

¡Muchas Gracias!

Continúe en la siguiente página →

Sección 1: Estas preguntas describen la habilidad que tiene su farmacéutico para proveer información en español. Por favor circule el número que mejor describe su respuesta para cada pregunta.

¿Que tan conforme o satisfecho(a) está usted con sus farmacéuticos en relación a:	Extremada-mente inconforme	Inconforme	Conforme	Extrema-damente conforme
a. La habilidad del farmacéutico para escuchar sus preocupaciones sobre su salud?	1	2	3	4
b. La habilidad del farmacéutico para contestar todas sus preguntas?	1	2	3	4
c. La habilidad del farmacéutico para proveerle consejos sobre el uso de medicamentos (medicinas)?	1	2	3	4
d. La habilidad del farmacéutico para proveerle una explicación sobre su (s) enfermedad (es)?	1	2	3	4
e. La habilidad del farmacéutico para proveer instrucciones de seguimiento?	1	2	3	4
f. La habilidad del farmacéutico para entender completamente lo que usted está tratando de decir?	1	2	3	4
g. Demostrarle un trato respetuoso?	1	2	3	4
h. Demostrarle simpatia?	1	2	3	4
i. Demostrarle un trato amistoso?	1	2	3	4
j. Entendimiento de su cultura en general?	1	2	3	4

Sección 2: Estas preguntas describen las habilidades de su farmacéutico. Por favor circule el número que mejor describe su respuesta a cada pregunta.

¿Que tan conforme o satisfecho está usted con la habilidad de sus farmacéuticos para:	Extremada-mente inconforme	Inconforme	Conforme	Extrema-damente conforme	No Aplicable
a. Comprender la importancia de la opinión de su familia cuando toma decisiones sobre asuntos de cuidados de la salud?	1	2	3	4	☐
b. Comprender su uso de sanadores o curanderos?	1	2	3	4	☐
c. Comprender su uso de tés herbales y tratamientos herbales (herbolaria)?	1	2	3	4	☐
d. Comprender su uso de remedios caseros?	1	2	3	4	☐
e. Comprender su costumbre de rezar como método de sanación?	1	2	3	4	☐

Sección 3: Estas preguntas son sobre las características de un farmacéutico que son importantes para usted. Por favor circule una respuesta por pregunta.

¿Qué tanta importancia tienen para usted las siguientes características de su farmacéutico?	Nada importante	Algo importante	Importante	Muy Importante
a. El farmacéutico habla español	1	2	3	4
b. El farmacéutico es Hispano o Latino.	1	2	3	4
c. El farmacéutico es respetuoso	1	2	3	4
d. El farmacéutico demuestra simpatia.	1	2	3	4
e. El farmacéutico es amistoso.	1	2	3	4
f. El farmacéutico comprende la importancia de la opinión de mi familia cuando tomo decisiones sobre asuntos de cuidados de la salud.	1	2	3	4
g. El farmacéutico tiene conocimientos sobre los sanadores o curanderos.	1	2	3	4
h. El farmacéutico tiene conocimientos sobre los tés herbales y tratamientos herbales (herbolaria).	1	2	3	4
i. El farmacéutico tiene conocimientos sobre los remedios caseros.	1	2	3	4
j. El farmacéutico provee información por escrito en español.	1	2	3	4

Sección 4: Estas preguntas se refieren a la comunicación entre usted y su farmaceutico. Ponga una 'X' junto a su respuesta.

1. ¿Cómo calificaría la habilidad de su farmacéutico para hablar español?

_____ No puede hablar español

_____ Pobre (Sabe unas palabras en español)

_____ Regular (Sabe unas frases en español)

_____ Buena (Puede tener una conversación corta en español)

_____ Excelente (Puede hablar español muy bien)

2. ¿Llegó usted a necesitar un intérprete que hablara español durante alguna de sus visitas con su farmacéutico en la clínica?

_____ No, mi farmacéutico habla español.

_____ No, un familiar o amigo hizo la interpretación para mí.

_____ No, un miembro del personal de la clínica hizo la interpretación para mí.

_____ Sí

3. ¿Si usted llegó a necesitar un intérprete que hablara español, le ofrecieron uno?

_____ No

_____ Sí

_____ No, yo no tenia necesidad de un intérprete

4. ¿A quién preferiría usted para que le ayudara a interpretar (traducir) la información?

_____ Un intérprete profesional

_____ Un farmacéutico que hable español

_____ Un miembro del personal de la clínica que hable español

_____ Un miembro de su familia o amigo

_____ Un intérprete por teléfono

_____ Otro (especifique):_____

5. ¿Con qué frecuencia su farmacéutico entiende completamente lo que usted está tratando de decirle a él o ella sobre sus medicamentos (medicinas) y estado de salud?

_____ Nunca

_____ A veces

_____ Frecuentemente

_____ Siempre

6. ¿Con qué frecuencia entiende usted completamente lo que su farmacéutico trata de decirle sobre sus medicamentos (medicinas) y estado de salud?

_____ Nunca

_____ A veces

_____ Frecuentemente

_____ Siempre

Por favor continúe en la página siguiente →

Sección 5: Por favor conteste unas cuantas preguntas sobre usted. Provea una respuesta por cada pregunta.

7. ¿En qué año nació usted? 19_____

8. ¿Cual es su género?

_____ Femenino

_____ Masculino

_____ LGBT ("Lesbiana, Gay, Bisexual, Transexual")

9. ¿Cuál de los siguientes mejor describe su nivel más alto de educación?

_____ No tuve estudios escolares

_____ El kínder a la primaria (o kindergarten a la elementary)

_____ La secundaria (o a la middle school)

_____ Algunos estudios de la preparatoria (o algunos estudios de la high school)

_____ Diploma de la preparatoria (o high school diploma o GED)

_____ Mas que la preparatoria (o mas que la high school)

10. ¿Qué tipo de seguro para gastos médicos tiene usted?

_____ Seguro privado

_____ Medicaid

_____ CHIP

_____ Medicare

_____ MAP (rosa) o escala de pago (azul) tarjeta

_____ No tengo seguro médico o de gastos médicos/Pago de mi bolsillo

_____ No sé

11. ¿Cuántos medicamentos (medicinas) toma usted? Por favor incluya las medicinas recetadas por su médico, las que se compran sin receta y las medicinas o suplementos a base de hierbas (productos herbolarios).

_____ 1-2

_____ 3-4

_____ 5-6

_____ 7-8

_____ 9-10

_____ Más de 10

12. ¿Padece usted alguna de las siguientes enfermedades o condiciones médicas? (Ponga una 'X' en todas las que apliquen.)

		Yes	No
a.	Diabetes/Niveles altos de azúcar en la sangre	☐	☐
b.	Hipertensión arterial/Presión sanguínea alta	☐	☐
c.	Depresión	☐	☐
d.	Colesterol alto	☐	☐
e.	Otras enfermedades o dolencias (especifique): _____ _____ _____ _____	☐	☐

13. ¿Cómo calificaría su estado de salud en general?

_____ Pobre

_____ Regular

_____ Buena

_____ Excelente

14. Por favor escriba cualquier comentario adicional o sugerencia que usted tenga.

_____

_____

_____

_____

_____

_____

_____

Muchas gracias por completar la encuesta. ¡Su información será utilizada para ayudar a mejorar los servicios ofrecidos por los farmacéuticos clínicos para los pacientes que hablan español!

Por favor doble la encuesta y póngala en la caja receptora sellada.

APPENDIX J: SURVEY FOR CLINICAL PHARMACISTS

SURVEY OF PATIENT SATISFACTION WITH PHARMACY SERVICES

Thank you for your participation in this study. Please be assured that your responses will remain confidential and will only be available to the researchers of this study. After you have filled out this survey, please fold and place it in the sealed drop-box.

Thank you!

Please continue to the next page →

Section 1: This question pertains to your Spanish proficiency. Place an 'X' next to your response.

1. How would you rate your ability to speak Spanish with your Spanish-speaking patients?

_____ Cannot speak Spanish

_____ Poor (know a few words in Spanish)

_____ Fair (know a few phrases in Spanish)

_____ Good (can hold a small conversation in Spanish)

_____ Excellent (fluent in Spanish)

Section 2: This question pertains to your demographics. Place an 'X' next to your response.

2. What is your race/ethnicity?

_____ White

_____ Hispanic

_____ Black or African American

_____ Asian or Pacific Islander

_____ American Indian or Alaskan Native

_____ Other, (specify): _____

Thank you for completing this survey. Your information will be used to help improve Spanish-speaking patients' satisfaction with the services of clinical pharmacists!

Please fold the survey and place it in the sealed drop-box.

BIBLIOGRAPHY

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